

From the Forest to the Sea:
Lessons in Managing Public Space

by

Morgan Gopnik

Marine Science and Conservation
Duke University

Date: _____

Approved:

Michael Orbach, Supervisor

Xavier Basurto

Lisa Campbell

Larry Crowder

Josh Eagle

Dissertation submitted in partial fulfillment of
the requirements for the degree of Doctor of Philosophy
in Marine Science and Conservation
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ABSTRACT

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Abstract

In 2004, a report from the U.S. Commission on Ocean Policy documented a broad range of *ecological* problems in U.S. ocean waters, including declining fish stocks, changes in marine biodiversity, coastal habitat loss, and hypoxic “dead zones,” as well as related *governance* problems, such as uncoordinated and contradictory laws, underfunded programs, and conflicts between local, state, and federal priorities. The Commission’s recommendations for improvement revolved around the themes of ecosystem-based management, improved agency coordination, and regional flexibility.

One recommendation in particular stated that, “Congress ... should establish a balanced, ecosystem-based offshore management regime that sets forth guiding principles for the coordination of offshore activities.” Five years later, President Obama instructed an interagency taskforce to develop a “framework for effective coastal and marine spatial planning” to help achieve the goals of that recommendation and, in 2012, nine Regional Planning Bodies were established to begin the planning process.

Not everyone has embraced marine spatial planning (MSP) as a desirable next step in ocean management. Some ocean industries worry that MSP could interfere with economic priorities. New users, such as offshore windfarm developers, fear that extended planning will further delay their activities. Members of Congress have complained that MSP policy lacks adequate legislative underpinnings. Still others worry

that MSP may be a solution in search of a problem, diverting money and attention away from more immediate ocean challenges. Equally worrisome, the policy research community has yet to provide solid theoretical or historical support for the presumed efficacy of MSP in U.S. ocean waters. In light of the recent, rapid adoption of MSP and the questions surrounding it, more rigorous examination is in order.

This study contributes to that examination in two ways. First, it places MSP within the broader context of research and practice in fields such as policy analysis, common-pool resource theory, institutional analysis, planning and design, community engagement, and conflict resolution. Second, it looks at the history of U.S. public lands—a public space that has been accommodating multiple uses and conservation for over a century—as a comparative model. This approach results in three research questions:

- 1) Are U.S. public lands and the U.S. EEZ sufficiently similar, based on characteristics most relevant to policy analysis, that successes and failures in one arena might be relevant to the other?
- 2) If so, has over a hundred years of active public land management in the U.S. produced any lessons for success that might be applicable to the more recently developing field of ocean management, particularly with respect to multiple-use planning and management? and
- 3) If the settings are similar in meaningful ways, and if lessons can be distilled from public lands management, how might these be transposed, or operationalized to

inform the current drive for more integrated ocean management, particularly through the tool of marine spatial planning?

A critical review and synthesis of U.S. public land studies, particularly regarding the history of the National Forests, comprises one important element of the study. This is supplemented with case studies, site visits, detailed analyses of government documents related to both land and ocean management, and extensive formal and informal interviews with key informants in the National Forest and ocean management communities.

The study results answer the first two questions in the affirmative and conclude that sustainable, multiple-use management of government-controlled spaces and resources inevitably requires tradeoffs between numerous competing objectives. These tradeoffs can rarely be resolved through objective decision analysis and will rely implicitly or explicitly on value judgments. Using forest history as a model, it appears that the most significant choices to be made by ocean policy makers will revolve around: 1) the scale of problem definition and resolution; 2) the relative emphasis on political, technocratic, judicial, or participatory decision-making; and 3) the extent of flexibility allowed. Specific suggestions are made for how elected officials, agency staff, environmental organizations, industry, and academia can approach ocean management in a way that reflects a variety of interests, advances understanding, and achieves sustainable and productive ocean ecosystems.

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Part I: A New Context for Ocean Policy

1. New Directions in U.S. Ocean Policy

1.1 Diagnoses of ocean problems and prescriptions for change

For most of recorded history, people have viewed the ocean as “wild, unruly, and untamable” (Steinberg 2001), considering it “a source of inexhaustible resources, the use of which need not be restricted” (Orbach 2003). Gradually, as technology advanced and ocean space became more accessible, people were able to more easily move across its expanse and exploit its resources, leading to periodic attempts by nations to control ocean access and use (Russ and Zeller 2003). By the middle of the last century, the ocean waters surrounding U.S. territory were home to growing nearshore recreational activities, large international fishing operations, offshore oil extraction, and commercial and military ship routes, but national ocean management was still in its infancy.

In 1966, Congress declared that it was “the policy of the United States to develop, encourage, and maintain a coordinated, comprehensive, and long-range national program in marine science for the benefit of mankind to assist in protection of health and property, enhancement of commerce, transportation, and national security, rehabilitation of our commercial fisheries, and increased utilization of these and other resources” (Marine Resources and Development Act of 1966, P.L. 89-454) and simultaneously created the Commission on Marine Sciences, Engineering, and Resources (generally referred to as the Stratton Commission after its chairman) to “make

a comprehensive investigation and study of all aspects of marine science in order to recommend an overall plan for an adequate national oceanographic program that will meet the present and future national needs.”

Although the Act’s wording focused on marine science and technology, the Commission also explored the larger federal framework for ocean management, finding “little coordination of the many Federal, State, and local agencies with partial responsibilities” for coastal and ocean management, and concluding that the nation “need[s] to establish the institutional framework and the scientific and technological foundation for assuring that [it] has access to those resources of the sea which it needs when it needs them” (CMSER 1969). In the three years following release of the Stratton Commission report, the National Oceanographic and Atmospheric Administration (NOAA) was created through Executive action and the Coastal Zone Management Act, National Marine Sanctuaries Act, and Marine Mammal Protection Act, were all passed.¹

Over the next three decades, ocean laws and programs multiplied, the scientific study of marine ecosystems became more sophisticated, and challenges such as declining fish stocks, the loss of large predators, changes in marine biodiversity, endangered species, coastal habitat loss, hypoxic “dead zones,” and ocean acidification became increasingly evident, as described in the Pew Commission and U.S. Ocean Commission reports (Pew Oceans Commission 2003; USCOP 2004) and documented in

¹ A more detailed review of the history of U.S. ocean management is presented in Chapter 2.

numerous scientific publications (e.g., NRC 1990; Gray 1997; Pauly et al 1998; Rabalais and Turner 2001). Explanations for these declines pointed to human causes such as overfishing, coastal development, point and non-point source pollution, and climate change, while proposed solutions varied from tighter regulation and better enforcement (e.g., Graham and Reilly 2011), to market-based solutions (e.g., Wilen 2000), community-based management (e.g., Jentoft 2000), and marine protected areas (e.g., NRC 2001). These problems, causes, and proposed remedies have been conveyed to decision-makers through the sources cited above, media campaigns, and lobbying efforts.

One solution that was advanced from time to time, but not widely embraced, called for comprehensive, multiple-use planning and management to cope with the complexities of ocean ecosystems and human uses (see Young and Fricke 1975; Knecht and Kitsos 1984; Juda and Burroughs 1990, Norse 2002). The writings of these authors seem prescient in light of recent developments. Almost forty years ago, Young and Fricke wrote: "Sea use planning, we believe, is a necessary intellectual tool ... to seize hold of some of the problems that so far have been too slippery ... Because of the multiplicity of competitive, and potentially damaging uses, sea use now needs to be ordered and controlled ... in the interests of the community as a whole."

In July 2000, Congress created the U.S. Commission on Ocean Policy to develop recommendations regarding "a coordinated, comprehensive, and long-range national policy for the responsible use and stewardship of ocean and coastal resources

for the benefit of the United States” (Oceans Act of 2000, PL 106-256). The resulting report (USCOP 2004) includes 212 recommendations—ranging from general ideas to very specific instructions²—but the unifying theme throughout is the need to adopt ecosystem-based approaches, requiring greater agency coordination and regional flexibility. Recommendation 6.2 in particular states that, “Congress ... should establish a balanced, ecosystem-based offshore management regime that sets forth guiding principles for the coordination of offshore activities.” That recommendation and the reasoning behind it lie at the heart of this study. They also foreshadowed the Presidential call, just five years later, to implement marine spatial planning throughout U.S. waters.

1.2 Growing support for marine spatial planning

At the time of the Ocean Commission’s deliberations, the relatively new concept of marine spatial planning (MSP) was virtually unknown in U.S. policy circles; the term does not appear anywhere in its final report. However, the practice was beginning to be implemented in Canada (Rutherford et al 2005) and a number of European countries (Maes et al 2005, Douvère and Ehler 2009), and a few U.S.-based academics were promoting the related idea of ocean zoning (e.g., Norse 2002; Russ and Zeller 2003).

Although explanations of MSP vary slightly from author to author, one commonly cited

² For example, Recommendation 29-5 advises the State Department to “improve its integration of ocean-related scientific expertise in policy and program development,” while Recommendation 11-4 instructs the Fish and Wildlife Service to “complete, digitize, and periodically update the National Wetlands Inventory.”

definition states that “MSP is a public process of analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic, and social objectives that are usually specified through a political process” (Ehler and Douvère 2009).

In November 2006, a handful of Americans attended an international meeting, hosted by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) and funded in part by the California-based Gordon and Betty Moore Foundation,³ where speakers discussed the developing theory and practice of MSP (Ehler and Douvère 2006). Four months later, in early 2007, an informal poll was conducted at a meeting of twelve U.S. ocean policy experts, held in Washington, DC and hosted by the Ocean Conservancy. Their predictions for when MSP might be implemented in the U.S. ranged from 8 to 20 years, with an average of around 12 years (meeting notes on file with the author). They saw few economic drivers and little political support for such an approach. Yet, only two years later, a Presidential memo directed an interagency taskforce to develop a “framework for effective coastal and marine spatial planning” (White House 2009). The recommendations of that task force were then adopted through Executive Order #13547 in July 2010. As of this writing, active steps are being taken in Washington D.C. and nine regions around the country to

³ From 2006 through 2012, the Moore Foundation provided over \$65 million in grant funding for projects that advance the adoption of marine spatial planning (numbers compiled from information posted at www.moore.org).

launch marine planning efforts throughout U.S. waters. This is a remarkable pace for embracing a significant new policy direction—in ocean management or any other area—based on little track record and scant national dialogue.⁴

1.3 Concerns about marine spatial planning

Not everyone has embraced MSP as a desirable next step in ocean management (see e.g., Gardner 2012). Some ocean industry sectors, particularly offshore oil and gas and international shipping, worry that MSP “could create uncertainty and harm economic activity” and that “the policy is being developed without adequate congressional engagement and consideration of the views of ocean, coastal, Great Lakes, and inland user groups, including commercial and recreational interests” (NOPC 2012). A series of workshops organized by Duke University’s Nicholas Institute for Environmental Policy Solutions brought together a broad array of ocean users who expressed similar concerns, albeit with greater optimism that they might be overcome (Gopnik et al 2012). The U.S. House of Representatives’ Natural Resources Committee has held a number of hearings highly critical of this new direction in ocean policy,⁵ and released a number of disparaging—and not entirely accurate—factsheets and press

⁴ A detailed analysis of the Executive Order, Task Force report, and subsequent actions to implement MSP is presented in Chapter 7.

⁵ U.S. House Resources Committee Oversight Hearing on “The President’s New National Ocean Policy - A Plan for Further Restrictions on Ocean, Coastal and Inland Activities,” October 4, 2011 and October 26, 2011; Oversight Hearing on “Empty Hooks: The National Ocean Policy is the Latest Threat to Access for Recreational and Commercial Fishermen,” March 22, 2012; Oversight Field Hearing on “Alaska’s Sovereignty In Peril: The National Ocean Policy’s Goal to Federalize Alaska,” April 3, 2012.

releases deploring its adoption (e.g., House Resources Committee 2011). Groups representing fishermen decry efforts that might reduce their access to ocean waters (e.g., RFA 2009; CCA 2012), and a conservative website ominously declares that: "CMSP has the potential for the greatest encroachment on private property rights we have ever faced in this nation ... CMSP has the potential for turning over control of commercial and recreational fishing to the United Nations" (Beaufort Observer 2012).

Even groups that are generally supportive of MSP worry that their constituencies' concerns may not be given sufficient weight. For example, the public comments on the proposed MSP framework reveal that environmental advocates want to ensure that ecosystem protection, including siting of additional marine protected areas, trumps economic goals while renewable energy advocates worry that the new policies might slow down ongoing permitting processes.

But beyond such sector-specific concerns, more fundamental questions arise:

- *Is MSP being oversold as the overarching solution to ocean governance problems?* Public policy scholars warn against the "perverse and extensive use of policy panaceas in misguided efforts to make ... human-environment systems sustainable" and "the danger of blueprint approaches to the governance of tough social-ecological problems" (Ostrom 2007). Ostrom recommends instead adopting a more analytic, diagnostic approach, whereby each situation is treated as a unique combination of human and ecological variables necessitating uniquely designed solutions. Already,

- some observers have suggested that the focus on MSP is stealing attention away from more specific problems and more targeted solutions (e.g., Spalding 2011).
- *Might MSP be undermined by the effects of top-down, technocratic hubris?* James Scott's landmark studies of projects as diverse as Prussian forestry, Soviet collective farms, and the design of Brazil's capital city, Brasilia, provide ample lessons about the perils of large, centralized, seemingly-scientific government projects that do not perceive or allow for pre-existing social patterns (Scott 1998). For similar reasons, nationwide implementation of MSP based on a single federal framework might override existing, functional policy systems and decrease management experimentation at local and regional scales.
 - *Can experience with MSP implementation in other countries serve as a valid model for U.S. practice?* Another body of research, coming largely out of the international development community, explores the limitations associated with transferring seemingly successful policy approaches from one country to another (e.g., Dolowitz and Marsh 1996; Rose 1991; Bennett and Howlett 1992; de Jong et al 2002). Existing "guides" to MSP, all of which look to experiences in Europe and Australia to develop their recommendations (e.g., Ehler and Douvère 2009), may not be fully applicable in the very different U.S. context where there is a history of strong private property rights and substantial mistrust of government programs, federal mandates, and the very notion of central planning.

1.4 Putting marine spatial planning in context

To reconcile the promise and potential pitfalls of MSP and achieve a realistic assessment of its likely outcomes, MSP must be examined in a critical light, using the available tools and accumulated learning of policy analysts and natural resource governance scholars, informed by appropriate historical perspective. Unfortunately, much of the current thinking and writing on ocean policy, notably including the two recent ocean commission reports (Pew Oceans Commission 2003 and USCOP 2004), does not provide such links between theory and practice (Duff 2004). In fact, Kidd and Ellis observe that MSP's "core concepts and assumptions ... have not been subject to rigorous intellectual debate" (Kidd and Ellis 2012).

Proponents of MSP often explain it to new audiences using analogies to the more familiar and widespread practice of urban land-use planning (e.g., Tyldesley and Hunt 2003). Although this has proved helpful in conveying the concept of MSP to a broad audience, the comparison is imperfect. Land-use planning relies on a political process to guide the use of property, including substantial portions of private property, to achieve a better overall result for a particular community. But, with few exceptions, the ocean and its resources are already a *public good*, to be managed for the welfare of the citizenry (Turnipseed et al 2010). Thus, a more promising avenue might be to compare ocean management to that undertaken for other common pool resources—such as public lands, the atmosphere, or telecommunications frequencies—that have been managed for

a longer time and, in some cases, more carefully studied. As explained by Duff (2004): “Ocean areas are *public* space. As a result, the more apt models that ought to be considered in assessing ocean space/resource management issues are those models that have been employed to manage other *public* areas and resources” (emphasis added).

The goal of this project is to place MSP within the broader context of research and practice in fields such as policy analysis, common-pool resource theory, institutional analysis, planning and design, community engagement, and conflict resolution, and to use the history of U.S. public lands as a comparative model.

In preliminary interviews, individuals who had experience in either land or ocean management were typically very resistant to the idea that the two systems might be compared. They focused, instead, on elements that seemed different and foreign to them, hardly able to imagine what a landscape of mountains, streams, and forests, with its associated communities of loggers, hikers, and hunters might have in common with beaches, coral reefs, and wide-open waters plied by surfers, boaters, fishermen, and container ships. However, a handful of individuals who had substantial experience in both settings jumped at the suggestion of similarities, eager to discuss the overlaps they had observed. As reported by a staff-member at one ocean advocacy group who had previously worked for many years on forest policy: “As soon as I started working on ocean issues, I saw the similarities. But I’ve become reluctant to say anything, because my ocean colleagues can’t see it.”

1.5 Research questions, approach, and methods

At the heart of my research lie three questions:

- 1) Are U.S. public lands and the U.S. EEZ sufficiently similar, based on characteristics most relevant to policy analysis, that successes and failures in one arena might be relevant to the other?
- 2) If so, has over a hundred years of active public land management in the U.S. produced any lessons for success that might be applicable to the more recently developing field of ocean management, particularly with respect to multiple-use planning and management? and
- 3) If the settings are similar in meaningful ways, and if lessons can be distilled from public lands management, how might these be transposed, or operationalized to inform the current drive for more integrated ocean management, particularly through the tool of marine spatial planning?

Embedded in these broad questions is a suite of subsidiary theoretical and practical inquiries, such as: What kinds of similarities (or differences) are likely to make policy comparisons meaningful? What is the meaning of policy “success” and “failure” and, thus, what constitutes a “lesson”? Is there any agreement about what approaches have worked best on land? Can success be translated from one policy context to another? Fortunately, there is a substantial body of ongoing research in each of these areas on which to draw.

This study does not adhere to a single, overarching theoretical framework of resource management. Instead, it looks to a number of disciplines, analytic approaches, and policy theories, many of which were developed within different academic traditions and exhibit little recognition of, or reference to the others, in order to extract whatever knowledge and insights seem helpful for answering the questions at hand. This tactic was well-described in an influential study of “multiorganizational systems” when the author unapologetically admits to “borrowing freely from whatever theories seemed most useful for understanding the problem” (Chisholm 1989).

One of the advantages to looking at public land management as a model is the availability of a century of documentation and research on that subject. A critical review and synthesis of the voluminous historical and theoretical literature on U.S. lands—particularly the National Forests—served as an important foundation for this research project. That underpinning is then supplemented with case studies based on site visits to different regions, including conversations with community members and recorded, semi-structured interviews (see Chapter 5), detailed analyses of official government documents related to both land and ocean management, and extensive formal and informal interviews with key informants in the ocean management community. Transcripts of interviews were analyzed with the help of the qualitative analysis software package, NVivo, as well as traditional close-reading and classification by

themes and keywords. Each chapter provides additional details about the methods used in that portion of the study.⁶

1.6 Structure of the document

This manuscript is divided into three sections. Part I, addressing the first research question, describes and compares land and marine-based socio-ecological systems. Following the introduction to the project provided in this chapter, Chapter 2 provides some historical perspective, first sketching the transition in the ocean from “freedom of the seas” to declaration of the U.S. exclusive economic zone and development of U.S. ocean laws and agencies and then reviewing the genesis of “public lands” and the agencies that oversee them, focusing specifically on multiple-use management of the National Forests as the most apt mirror to marine spatial planning in the exclusive economic zone. The nature of property rights and governance structures are of particular interest. Chapter 3 explores the substantial theoretical literature on governance and public policy to identify those variables considered most central to

⁶ A professional disclosure is in order. Prior to undertaking this study, I spent fifteen years working on ocean policy-related issues for a think tank, an environmental advocacy group, a federal agency, and as staff to the U.S. Commission on Ocean Policy. I was introduced to the idea of comparing land and ocean management during the National Academy of Sciences’ Fourth Annual Roger Revelle Lecture. In a transcript of that talk, Orbach (2003) concludes that, “ocean space and resources are not significantly different from the terrestrial and atmospheric in terms of functionally appropriate governance institutions.” A few years later, I took an early interest in marine spatial planning and, in 2007, received a grant from the Moore Foundation to write a report on MSP for their internal use (Gopnik 2008). These experiences provided the impetus for this study and afforded me access to many events and informants with which it may otherwise have been difficult to connect. My current bias regarding MSP is simple: The more widely accepted the idea becomes, the greater scrutiny it merits.

understanding a given policy situation, and thus most likely to prove relevant to a land-ocean comparison. The set of variables selected helps guide the remainder of the study.

Part II presents a history of the U.S. National Forest system, with a focus on evolving forest management approaches, the forces driving them, and the outcomes that resulted in order to answer the second research question about lessons learned. Chapter 4 first summarizes more than a hundred years of laws, regulations, and public statements and reviews the voluminous scholarship that has been produced on the topic of National Forest management. Chapter 5 then enhances this historical synopsis with the results of two National Forest case studies, one in Oregon and one in coastal North Carolina. Site visits and interviews connected with these case studies add nuance and a human voice to this section.

In Part III, findings about forest management are applied to the marine realm, addressing the third research question. Chapter 6 begins by exploring the theory of “lesson-drawing,” with its cautions about what kinds of experiences are likely to be translatable from one policy situation to another and when such an exercise is appropriate. With these caveats in mind, the key findings from Chapters 4 and 5 are summarized, identifying themes and potential “lessons” from national forest management that might be applicable to the ocean setting. Chapter 7 returns to the topic of marine spatial planning (MSP), looking in detail at current attempts by the Executive branch to implement a new national ocean policy that uses MSP as an overarching

management tool and then comparing the proposed MSP implementation framework with the lessons derived in Chapter 6. Chapter 8 summarizes the major findings and conclusions of the study, with recommendations for the greater ocean community—including elected officials, agency staff, advocacy organizations, industry, academia, and the interested public—on how to approach ocean management in a way that reflects a variety of interests, advances understanding, and achieves sustainable and productive ocean ecosystems.

The next chapter lays the groundwork for addressing the proposed research questions by providing an overview of federally-managed space on land and in the ocean.

2. Public Land/Public Ocean

2.1 Federally-controlled spaces

The U.S. is a vast country, exceeded in area only by Russia, approximately the same size as China and Canada, and more than twice as large as all European Union countries combined.¹ It includes 3.6 million square miles of land and exerts various levels of control over another 4.5 million square miles of open water (in the Great Lakes and the ocean). Of the total land area, state and local governments own 9 percent, about 2 percent are Indian trust lands, the federal government owns roughly 27 percent, and the remaining 62 percent is privately owned.² In the ocean, there is limited local control immediately at the coastline and state governments control nearshore waters, but the federal government has jurisdiction over the far larger exclusive economic zone (EEZ), extending from the boundary of state waters out to 200 miles from shore. At this time, based on shared traditions, national laws, and international treaties, there is no private ownership of ocean territory (USCOP 2004b). It is significant that this terminology of “control” and “jurisdiction” differs from the concept of “ownership” on land, as will be discussed further below.

¹ U.S. Central Intelligence Agency, World Factbook 2012. Accessed at <https://www.cia.gov/library/publications/the-world-factbook/index.html>

² Figures compiled in 2001 by the Natural Resources Council of Maine based on data from: the National Park Service Land Resources Division; U.S. Bureau of Land Management, Public Land Statistics; U.S. Forest Service Lands and Realty Management; U. S. Fish and Wildlife Service Division of Realty; Department of Defense Almanac; and U.S. Army Corps of Engineers Water Resources Projects. Accessed at <http://www.nrcm.org/documents/publiclandownership.pdf>

This chapter explores two areas controlled primarily by the federal government, the U.S. EEZ and U.S. public lands,³ briefly outlining their genesis and modern day features, noting their differences, and identifying some ways in which they are remarkably similar.

2.2 The U.S. Exclusive Economic Zone: an overview

2.2.1 A brief history

For thousands of years, the global ocean was thought of as a vast expanse, unconquerable, fearsome, and inexhaustible.⁴ From time to time, countries attempted to assert authority or ownership over ocean space, but these self-declared and unenforceable claims were mostly ignored by other nations wishing to ply the ocean for trade and military purposes. A 1608 treatise arguing for “Freedom of the Seas”⁵ set out the guiding principle for maritime activities for the next 300 years, with repercussions for ocean management to this day. In its most general articulation, the Freedom of the Seas doctrine allowed ships of all nations to traverse ocean waters without hindrance, although its current incarnation, based on language in the U.N. Convention on the Law of the Sea, is more complex (USCOP 2004b).

³ There is some inconsistency in the literature about the use of the term “public lands.” Some scholars (e.g., Coggins 1982, Wilkinson 1987) use it only in reference to areas managed by the Bureau of Land Management. Others, including most recent authors (e.g., McKinney and Harmon 2004), refer to all government-owned areas as public lands. This study follows the latter usage.

⁴ This section summarizes detailed accounts of the evolution of ocean law as presented in Wenk 1972, Juda 1996, Steinberg 1999, Orbach 2003, and USCOP 2004(b).

⁵ The term “Freedom of the Seas” derives from Hugo Grotius’ 1608 treatise, *Mare Liberum*, but the underlying principles had been debated by scholars and philosophers for decades, if not centuries, before (Juda 1996).

Over the same time period, there was general agreement that nations had a special interest in, and could exert a greater degree of control over their coastal waters — assumed in the 17th and 18th centuries to be waters within reach of a canon-shot from land, or around 3 miles. In 1793, shortly after declaring its newfound independence, the U.S. declared full sovereignty over the area within 3 miles of its shores, claiming powers equivalent to its control over land-based territory. (See Table 2.1 for a timeline of significant U.S. ocean-related events.) Other coastal nations followed suit, establishing widespread acceptance of a 3-mile territorial sea. For over 100 years, politicians, ocean scientists, and legal scholars continued to debate the appropriate level of control and ownership over ocean space, some rejecting restrictions even within 3-miles and others arguing that the zone of national control should be expanded, primarily to allow greater influence over fisheries resources (Juda 1996).

By the turn of the 20th century, there was a growing recognition that the bright line distinction between fully-sovereign territorial seas and fully-free high seas was insufficient to deal with the complexities of ocean management (Wenk 1972). This reality was accentuated by the profusion of new ocean uses, including trans-ocean cables, subsea mineral and fossil fuel extraction, and increasingly large-scale offshore fishing, as well as the growing realization that ocean waters and resources were being harmed by human activities. Different kinds of protections, liberties, and controls would be needed to promote national security, commerce, resource use, and conservation above, in, and

Table 2.1: Timeline of major U.S. ocean management related events

Date	Event
1793	U.S. assertion of sovereignty over a 3-mile Territorial Sea
1945	Truman Proclamations on the Continental Shelf (U.S. control over outer continental shelf resources) and on Fisheries (U.S. ability to create fishery “conservation zones” outside territorial waters)
1953	Submerged Lands Act and Outer Continental Shelf Lands Act (OCSLA) passed; codify the Truman Proclamation on the Continental Shelf
1958	First U.N. Conference on the Law of the Sea
1969	Stratton Commission releases “Our Nation and the Sea;” National Environmental Policy Act and Endangered Species Act passed
1970	National Oceanic and Atmospheric Administration created
1972	Coastal Zone Management Act, Marine Mammal Protection Act, Marine Sanctuaries Act, and Clean Water Act passed
1976	Magnuson Act asserts U.S. control over fisheries resources out to 200 miles
1978	OCSLA Amendments passed requiring detailed process for offshore oil and gas leasing
1982	U.N. Convention on the Law of the Sea (UNCLOS) adopted and opened for nation-state ratification
1983	U.S. claims 200-mile EEZ, in keeping with UNCLOS provisions
1988	U.S. claims 12-mile Territorial Sea, in keeping with UNCLOS provisions
1997	National Oceanographic Partnership Program (passed; creates first cabinet-level, interagency ocean group, the National Ocean Research Leadership Council
1999	U.S. claims 12-24 mile Contiguous Zone, in keeping with UNCLOS provisions
2004	U.S. Commission on Ocean Policy report released; Pres. Bush establishes cabinet-level, interagency Committee on Ocean Policy
2010	Pres. Obama issues Executive Order establishing a National Ocean Policy, creating a cabinet-level, interagency National Ocean Council, and calling for Marine Spatial Planning in nine designated regions

beneath ocean waters.⁶ Decades of international meetings, expert committees, and draft treaties followed, but no agreement was concluded.

⁶ In 1898, a French scholar wrote, presciently, that there might be “one limit for the prohibition of hostile engagements, one limit for customs, one limit for fishing, one limit for jurisdiction; and even within the same group ... the limits may still vary.” (quoted in Juda 1996, p. 51).

The growing U.S. and global dependence on oil during and immediately after World War II, combined with the surge in increasingly mechanized factory-fishing, helped break this logjam. In 1945, President Truman issued Proclamation 2667 asserting U.S. “jurisdiction and control” over the resources on and below its continental shelf, considered to be “an extension of the land mass of the coastal nation and thus naturally appurtenant to it.” Mindful of U.S. military and commercial desires to maintain access to *other* nations’ waters, the Proclamation did *not* claim sovereignty over the ocean space extending above the seafloor. On the contrary, it emphasized that “the character as high seas of the waters above the continental shelf, and the right to free and unimpeded navigation, are in no way thus affected.” Truman’s second Proclamation on Fisheries, treaded a similarly fine line, declaring a U.S. right to create fishery conservation zones without attempting to prohibit foreign fishing outside territorial waters.

These unilateral declarations by the U.S. precipitated a variety of competing claims by other nations and the U.N. quickly recognized that this hodgepodge of conflicting assertions was not conducive to world order. In 1958, the U.N. General Assembly convened the first U.N. Conference on the Law of the Sea (UNCLOS I), which established committees to address five issues: the territorial sea, the continental shelf, an overall regime for the high seas, high seas fishing and living resources, and ocean access for land-locked countries. Subsequent Conferences, convened in 1960 (UNCLOS II) and 1973 (UNCLOS III), considered these and additional issues brought forth by member

states. Finally, in 1982, the U.N. Convention on the Law of the Sea (also referred to by the acronym UNCLOS) was completed and opened for ratification by U.N. member states. In brief, the Convention changed international ocean law in several ways: it allowed greater national control over some areas, including an expanded 12-mile territorial sea, a 12-24 mile contiguous zone, and a 12-200 mile EEZ;⁷ it institutionalized the generally-accepted freedom of innocent passage through territorial waters; it instructed nations to “protect and preserve” and “prevent, reduce, and control pollution of” the marine environment; and it promoted greater international coordination regarding the ocean, including cooperation in managing marine mammals and migratory fish species, U.N.-based dispute resolution mechanisms, environmental standard setting, and a declaration that seabed resources outside any EEZ constitute “the common heritage of mankind.” Although, for complex internal political reasons, the U.S. has still not acceded to UNCLOS, many of its provisions have been enshrined in U.S. law and successive administrations have indicated their intentions to adhere to its provisions (USCOP 2004).

While these international negotiations played out, disputes were also raging concerning U.S. state and federal authorities over coastal waters (Salcido 2007). As a result of the overlapping political and legal processes described above, waters

⁷ Note that the U.S., in 1976, and other nations had already asserted control over fisheries and subsea resources out to 200 miles.

surrounding U.S. territory are now classified into several zones, as outlined below and illustrated in Fig. 2.1.⁸

State waters, 0-3 (or 9) miles: States hold proprietary rights over waters out to 3 miles from shore (9 miles from the Gulf Coast of Florida and Texas) including the authority to manage natural resources throughout the water column and in the seabed, but the federal government retains its authorities over navigation, electrical power generation, national defense, and international affairs in this zone.

Territorial Sea, 0-12 miles: For the purposes of international law, the U.S. government has sovereignty over the air space, water column, seabed, and subsea area out to 12 miles from its shores, with limited provisions for “innocent passage” of foreign vessels. This does not override State authorities within 3 miles.

Contiguous Zone, 12-24 miles: In this area, the U.S. can ensure adherence to customs, fiscal, immigration, and pollution laws that apply within its territorial sea.

Exclusive Economic Zone, 12-200 miles: In the EEZ, the U.S. can claim sovereign rights over living and non-living resources throughout the water column and on and beneath the seafloor, and rights to other economic benefits derived in that area, such as wind or wave energy. The federal government also has jurisdiction over structures and environmental protection in the EEZ. However, the U.S. cannot control the passage of

⁸ Salcido (2008) reminds us that “the borders we have constructed offshore are merely a legal fiction: they are not consistent with ecosystem management, nor do they have any binding power over wildlife.” The blurriness of these lines will be discussed further in later chapters.

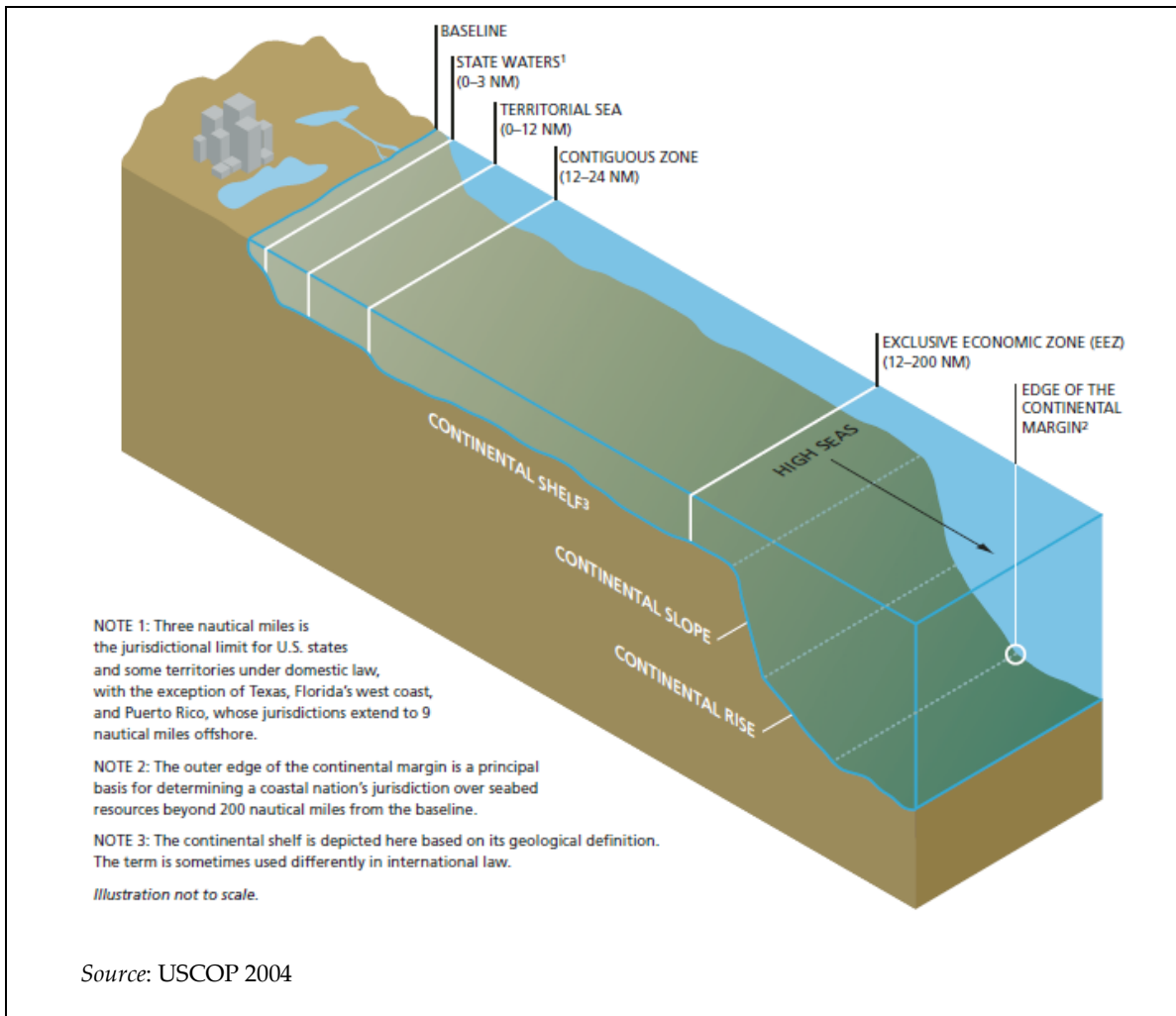


Figure 2.1: U.S. ocean jurisdictions

airborne, surface, or subsurface foreign vessels or the laying of seafloor cables and pipelines in the EEZ.

Extended continental shelf, 200 miles to the edge of the continental margin:

According to UNCLOS, if a nation believes that its continental shelf (defined as the seafloor and subsoil of the continental shelf, slope, and rise depicted in Fig. 2.1) extends further than the 200-mile EEZ, a claim can be filed with the International Commission on

the Outer Limits of the Continental Shelf. If the claim is upheld, that nation gains jurisdiction over seabed resources found on its continental shelf beyond 200 miles. The Truman

Proclamation asserted similar authority but, because the U.S. has not formally acceded to UNCLOS, it cannot have such claims affirmed by the International Commission.

The High Seas, areas beyond national EEZs: This area, beyond the direct control of any nation, is where the traditional Freedom of the Seas is most applicable. The International Seabed Authority, created by UNCLOS, oversees exploration, prospecting, and exploitation of marine minerals in the seabed and subsoil beneath the High Seas. A variety of other international agreements constrain certain behaviors in this area, such as whaling, the harvest of straddling or highly migratory stocks, and pollution of the high seas.

2.2.2 U.S. ocean agencies

The management of ocean space and resources developed along a different path than the management of public space on land. As will be discussed in Section 2.3 below, federal land agencies were created to oversee specially designated places within the public lands (e.g., forests, parks, wildlife refuges). However, most federal ocean agencies were created prior to establishment of the ocean zones discussed above and are

responsible for regulating particular *activities* throughout the EEZ and sometimes beyond.⁹

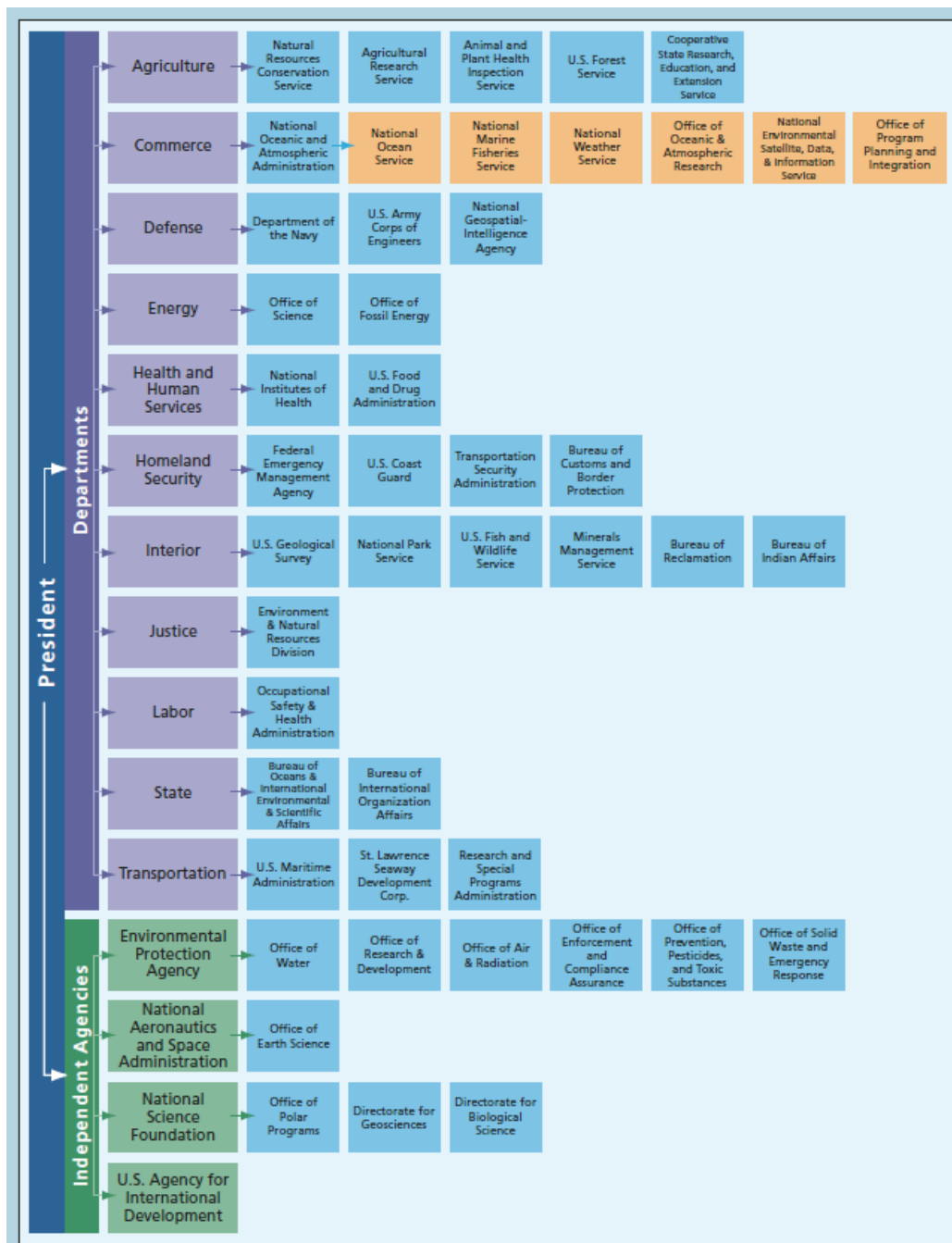
The U.S. Commission on Ocean Policy (2004) identified units within 15 cabinet-level departments or independent agencies that have some ocean responsibilities (see Figure 2.2). Many were established early in the nation's life to promote maritime safety and security (e.g., the Navy, Coast Guard, and Customs Service); some evolved from early bureaus and boards commissioned to explore, chart, and document ocean features and resources (e.g., the National Oceanic and Atmospheric Administration); while a few were created in connection with broad legislative goals that include ocean elements (e.g., the Environmental Protection Agency).

The main regulatory functions in the EEZ, and the U.S. laws¹⁰ establishing them, include:

- Fishery management through the Magnuson-Stevens Fishery Conservation and Management Act;
- Protections for marine mammals and endangered species through the Marine Mammal Protection Act and Endangered Species Act;

⁹There are some specially designated areas in ocean waters. The Department of the Interior manages 99 Marine Wildlife Refuges and ten National Seashores and the National Oceanic and Atmospheric Administration manages 13 National Marine Sanctuaries. Four recently established Marine National Monuments in the Pacific Ocean are jointly managed by Interior and NOAA. These areas occupy a small part of the total ocean space under U.S. jurisdiction and enjoy varying degrees of protection.

¹⁰Note that these regulatory missions are also affected by dozens of international maritime treaties.



*The Minerals Management Service in the Department of the Interior was re-organized as the Bureau of Ocean Energy Management and the Bureau of Safety and Environmental Enforcement in 2011.

Source: USCOP 2004

Figure 2.2: U.S. ocean-related agencies

- Control of pollution through the Clean Water Act, Clean Air Act, Ocean Dumping Act, Oil Pollution Act, Clean Vessel Act, Nonindigenous Aquatic Nuisance Prevention Act, and the Act to Prevent Pollution from Ships;
- Promotion and regulation of offshore mineral and energy production through the Outer Continental Shelf Lands Act, Deep Seabed Hard Mineral Resources Act, and Energy Policy Act;
- Protection of cultural and unique ecosystem resources through the Abandoned Shipwreck Act, National Historic Preservation Act, National Marine Sanctuaries Act, and Antiquities Act;
- Safe and secure marine operations primarily through the Ports and Waterways Safety Act, Commercial Fishing Vessel Safety Act, Maritime Transportation Security Act, International Safe Container Act, and Hazardous Materials Transportation Act.

The federal agency most widely associated with ocean management is the National Oceanic and Atmospheric Administration (NOAA) within the Department of Commerce, created in 1970 pursuant to recommendations from the presidentially-appointed Stratton Commission (CMSER 1969). Although the Commission had envisioned an independent agency that would incorporate virtually all non-military ocean and atmospheric functions, the Nixon Administration chose to create a smaller and less powerful organization within the Department of Commerce, with a focus on applied science. The new NOAA incorporated the Environmental Science Services

Administration (primarily the Weather Bureau, Coast and Geodetic Survey, and a number of research labs), the Bureau of Commercial Fisheries, the Marine Sport Fishery Program, the National Sea Grant office, and several other data collection and research offices. Today it is organized into six line offices (shown in Fig. 2.2) serving administrative, research, and regulatory functions.

As a result of the profusion of laws and treaties and the geographically overlapping jurisdictions of dozens of agencies, there have been repeated calls for better coordination of federal ocean management (e.g., NRC 1992, Pew Oceans Commission 2003, USCOP 2004, Crowder et al 2006). In 1997, Congress created the National Ocean Partnership Program (10 USC § 7901) to promote interagency cooperation, expand partnerships with industry and academia, and fund policy relevant research. NOPP was overseen by the first cabinet-level, interagency ocean group, the National Ocean Research Leadership Council. Seven years later, in response to the two Ocean Commission reports, President Bush convened essentially the same list of members as the Committee on Ocean Policy, preserving their high-level coordination function and broadening their scope to include resource management as well as research, but giving them no concrete mandate for action (IOPTF 2009, p.6). Most recently, in 2010, President Obama established a very similar 26-member cabinet-level National Ocean Council “to ensure a comprehensive and collaborative framework for the stewardship of the ocean, our coasts, and the Great Lakes that facilitates cohesive actions across the Federal

Government.” The Council is tasked with nine “national priority objectives,” the most immediate and concrete of which is, “to implement comprehensive, integrated, ecosystem based coastal and marine spatial planning and management in the United States.” (Executive Order #13547, July 19, 2010)

With this broad-brush sketch of the EEZ and its management in mind, we turn to the origin and current status of a different kind of federally-controlled space: the public lands.

2.3 The U.S. public lands: an overview

2.3.1 Origins of the public lands

Since its formation, the United States government has, at various times, claimed and then given away huge tracts of land.¹¹ At its peak, in the 19th century, the federal government controlled 80% of the nation’s area; that proportion gradually declined and leveled off at around 30% in 1970. Tables 2.2 and 2.3 portray some of this history of land acquisition (through appropriation, donations from states, wars, treaties, and purchases) and so-called “disposal” of these lands (through homesteading allotments, donations to states, grants to private railroads and other interests, outright sales, and restitution to

¹¹ The history presented in this section has been synthesized from a variety of sources, including: BLM 2010; Culhane 1981; Nie 2008; U.S. Public Land Law Review Commission 1970; Nickerson et al 2007; and Economic Research Service 2011.

Table 2.2: Major acquisitions of the public domain, 1781-1867

	Land (acres)	Water (acres)	Total (acres)	% of Total U.S. Land¹	Cost
State Cessions (1781-1802)	233,415,680	3,409,920	236,825,600	10.40	\$6,200,000
Louisiana Purchase (1803)	523,446,400	6,465,280	529,911,680	23.30	\$23,213,568
Red River Basin (1782-1817)	29,066,880	535,040	29,601,920	1.30	0
Cession from Spain (1819)	43,342,720	2,801,920	46,144,640	2.00	\$6,674,057
Oregon Compromise (1846)	180,644,480	2,741,760	183,386,240	8.10	0
Mexican Cession (1848)	334,479,360	4,201,600	338,680,960	14.90	\$16,295,149
Purchase from Texas (1850)	78,842,880	83,840	78,926,720	3.50	\$15,496,448
Gadsden Purchase (1853)	18,961,920	26,880	18,988,800	0.80	\$10,000,000
Alaska Purchase (1867)	365,333,120	12,909,440	378,242,560	16.70	\$7,200,000
Total Public Domain in 1867	1,807,533,440	33,175,680	1,840,709,120	81.00	\$85,079,222

¹Total U.S. land area in 1867 taken as 2,271,343,360 acres.

Source: U.S. Department of the Interior, Office of the Secretary, Areas of Acquisition to the Territory of the United States, Washington, D.C., 1992.

Native American tribes).¹²

These different phases illustrate evolving values and attitudes about the role of government and the best use of land. Through the end of the 19th century, the U.S.

¹² The U.S. government's claims over much of this land involved the often violent displacement of well-established Native American and Mexican inhabitants. One U.S. Senator in the 1840s boasted: "We have gone on ... multiplying and advancing towards the Pacific, till the Aborigines of the country had disappeared before us ... Was not the hand of destiny seen in that? He who did not see it must be an infidel ... Where shall we find room for all our people, unless we have Oregon?" (quoted in Bryner 1998, p. 276). St. Martin (2009) notes that, "the Jeffersonian project of gridding and enumerating the Western territories of the United States ... not only opened the frontier to settlement and capitalist expansion but simultaneously erased ... the community inhabitation and commons economies of Native Americans."

Table 2.3: Disposition of the public domain, 1781-2010

Type	Acres
Granted or sold to homesteaders	287,500,000
Granted to States for:	
Support of common schools	77,630,000
Reclamation of swampland	64,920,000
Construction of railroads	37,130,000
Support of miscellaneous institutions	21,700,000
Purposes not classified elsewhere	117,600,000
Canals and rivers	6,100,000
Construction of wagon roads	3,400,000
Total Granted to Continental States	328,480,000
Granted to State of Alaska and ANCSA:	
State Conveyances	98,966,613
Native Conveyances	43,230,247
Total Granted to State of Alaska	142,196,860
Granted to railroad corporations	94,400,000
Granted to veterans as military bounties	61,000,000
Confirmed as private land claims	34,000,000
Sold under timber and stone law	13,900,000
Granted or sold under timber culture law	10,900,000
Sold under desert land law	10,700,000
Disposition by methods not classified elsewhere	303,500,000
Total Miscellaneous Dispositions	528,400,000
Grand Total	1,286,576,860

Source: Public Land Statistics, 2010. Bureau of Land Management, U.S. Dept. of the Interior.

government's primary goal was to encourage westward settlement of the country by European immigrants and their descendants. This ambition fueled the drive to acquire new land and make it available to homesteaders and expanding railroad companies, who generally chose the most fertile, mineral rich, low-lying, or accessible areas. By the end of this period of land transfer, the areas remaining under federal ownership tended

to be dryer plains, desert zones, and steep, densely forested regions. By the late 19th century, the federal government shifted course and began to “reserve” certain areas of publicly-owned land (i.e., remove them from the pool available for grants or sales) if they were deemed to have national importance. This practice began with establishment in 1872 of the first National Park, Yellowstone, and was followed by the creation of additional parks and Forest Reserves (later called the National Forests) between 1891 and 1910. By 1934, virtually all “disposal” of public lands had come to an end.¹³

Currently, the Federal government controls approximately 653 million acres of land, about 40 percent of it in the Rocky Mountain region, 39 percent in Alaska, 14 percent in the Pacific region, 1.5 percent in the Appalachian region, and the remaining 5 percent scattered around the country.

2.3.2 U.S. public land management agencies

The oversight of this fluctuating inventory of government-owned land has also evolved over time, shifting from a focus on providing land to private users to a vision of federal lands as a public trust to be managed for a mix of use and conservation that benefits all citizens. Beginning in 1812, all federal public lands were administered by the

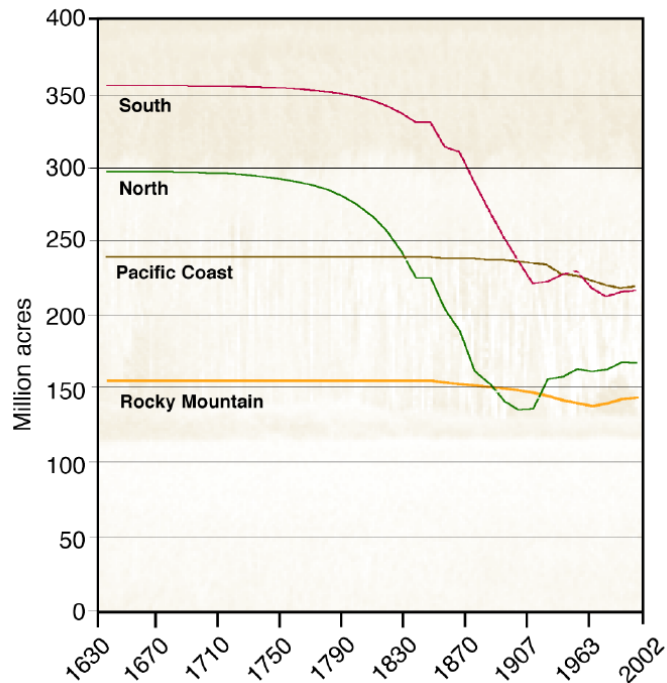
¹³ Under current law, public lands can be sold or exchanged only through an act of Congress or administratively under very limited conditions. For the Forest Service, any sale must “achieve a desired national forest land ownership pattern that supports forest land and resource goals and objectives, addresses fragmentation, reduces future management costs, and responds to urban and community needs” (USFS 2004). For the Bureau of Land Management, sales are only allowed to “serve important public objectives ... which cannot be achieved prudently or feasibly on land other than public land and which outweigh other public objectives and values, including ... recreation and scenic values” (FLPMA 1976, PL 94-579).

General Land Office (GLO), located first in the Treasury Department, and then moved to the Department of the Interior when the latter was created in 1849. The GLO's function was to keep track of the federal land registry and see that parcels were sold or given away as quickly as possible so they could be put to 'productive' private use. Subsequent land management agencies were formed by re-assigning GLO lands for some specified purpose.

As mentioned above, the first such reallocation came with creation of Yellowstone National Park out of GLO lands in Wyoming in 1872. The park was to be controlled directly by the Secretary of the Interior as a "pleasuring ground for the benefit and enjoyment of the people." By 1916, 40 more national parks had been designated, leading Congress to create a new division within Interior, the National Park Service, whose mission was "to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." (National Park Service Organic Act, 1916) Since then, hundreds of additional sites occupying a total of 88 million acres have come under National Park Service management, including not only Parks, but National Monuments, Historical Sites, Battlefields, Seashores, Lakeshores, and Recreation Areas, all intended to advance a mission of conservation and sustainable recreation (www.nps.gov).

The second new purpose for GLO lands was created in 1891 with executive establishment of forest reserves. Codified in an 1897 Organic Act (16 U.S.C. Sec. 473) the forest reserves, initially under GLO management, were intended to “improve or protect the forests, ... secure favorable conditions of water flow, and furnish a continuous supply of timber for the use and necessities of the citizens of the United States.” President Roosevelt’s election in 1901 led to an acceleration of forest reserve designations and a push to have them taken out from under GLO oversight, resulting in the 1905 Congressional creation of the Forest Service within the Department of Agriculture and transfer of all forest reserves (thereafter to be called National Forests) to the new agency. As early as 1908, 165 million acres of federal land in the West had been designated by President Roosevelt as National Forests—about 85 percent of their eventual total area. By that time, almost all forested lands in the eastern states were in private hands and many had already been heavily harvested (Figure 2.3). To halt this trend and add an Eastern presence to the national forest system, two additional pieces of legislation (the Weeks Act in 1911 and the Clark-McNary Act in 1924) authorized the Forest Service to purchase private lands that could be restored as viable forests, adding another 20 million acres of National Forest lands. Today, the Forest Service manages 175 National Forests and Grasslands, totaling 193 million acres (www.fs.fed.us).

Birds and game animals became the next target for protection through land set-asides. By the late 19th century, an expanding market for feathers for the fashion



Source: Smith et al 2004

Figure 2.3: Change in forested area (1630-2002), by region

industry (primarily for ladies' hats) resulted in intense harvests of herons, egrets, spoonbills and pelicans, particularly in warm, swampy areas of Florida. Responding to aggressive lobbying by the American Ornithologist's Union, and in keeping with his lifelong interest in outdoor sports and wildlife, Teddy Roosevelt designated the federally-owned Pelican Island in Florida as the first federal bird reservation in 1903. The Division (later Bureau) of Biological Survey in the Department of Agriculture was assigned the job of surveying resident bird populations and managing the new sanctuary. Roosevelt went on to add 55 other federal bird and game reservations to the Biological Survey's portfolio during his term. Throughout the next few decades, federal

public lands under GLO management continued to be set aside (through both Executive and Legislative action) to protect a variety of waterfowl, migratory birds, and larger game species. Finally, in 1940, Congress rechristened all these reservations as National Wildlife Refuges, and assigned their management to the newly created Fish and Wildlife Service (FWS) in the Department of the Interior. There are currently 556 units in the National Wildlife Refuge System, totaling 96 million acres (www.fws.gov).

The last pillar of today's federal public land management structure came about in response to widespread degradation of the remaining GLO lands, primarily due to water shortages and overgrazing. Over several decades, concerned legislators introduced bills to tighten regulations for grazing private cattle on public lands while leaders of the Forest Service (notably Gifford Pinchot, the first Chief Forester) lobbied to have GLO grazing lands transferred outright to their portfolio at the Department of Agriculture. But successive Secretaries of the Interior who were protective of their turf, and ranchers who were comfortable with the lack of active management by the GLO, strongly resisted such efforts. In May 1934, a massive dust storm, set off by a combination of prolonged drought and poor land management, carried some 350 million tons of soil from the northern Great Plains, casting a pall over cities on the eastern seaboard. One month later, the Taylor Grazing Act was passed. The Act called for portions of the pasture on federal lands to be allocated to certain ranchers for grazing, with fees to be paid for this privilege. A Division of Grazing (later the Grazing

Service) was created within Interior, separate from the GLO, to carry out these new management duties. The Grazing Service had relatively little clout; even minor proposed increases in grazing fees were successfully opposed by influential livestock owners who suggested that all remaining federal range lands should be turned over to private owners. Finally, in 1946, the lands administered by the Grazing Service and any remaining GLO lands were consolidated under the new Bureau of Land Management, effectively ending the era of disposal of federal lands.

As a result of the shifting national goals embodied in the sequence of events outlined above, what we think of today as the federal public lands (Table 2.4) are overseen primarily by the National Park Service, the Forest Service, the Fish and Wildlife Service, and the Bureau of Land Management—agencies originating respectively from concerns about outdoor recreation and preservation; forestry and watershed protection; birding, fishing, and hunting; and cattle grazing. Despite these varied founding motivations and primary purposes, all the federal land management agencies are governed by multiple-use mandates that require them to balance many different constituencies and public desires. This tension is central to the comparison between federal lands and the EEZ.

Based on my examination of the histories, purposes, management approaches, and ecosystem characteristics of the four major types of public land, National Forests

Table 2.4: Public land agencies

Agency	Jurisdictions in 1980	
	Acres (millions)	% of public lands
Bureau of Land Management	254.9	40.1
Forest Service	189.0	29.7
Fish and Wildlife Service	82.9	13.0
National Park Service	68.5	10.8
Departments of the Navy, Air Force, and Army (except Corps of Engineers)	22.1	3.5
Corps of Engineers	8.2	1.3
Water and Power Resources Service (formerly Bureau of Reclamation)	6.6	1.0
Department of Energy	1.6	0.2
Remaining agencies, departments, and bureaus	2.6	0.4
TOTAL	636.4	100.0%

Source: Public Land Statistics, 2010. Bureau of Land Management, U.S. Dept. of the Interior.

provide the most useful analogies to ocean space. Thus, throughout the remainder of this study, National Forests are used as the basis for my comparisons between land and ocean governance. Many other authors have pointed to the National Forests as particularly worthy of attention among the categories of public lands. Coggins (1981) provides a detailed comparison of the Forest Service and BLM, finding that the former has more productive, healthier lands under its control, more diverse resources and resource users, has been allowed greater leeway in management experiments, including conservation, and has overall done a better job executing its mission. Another article

notes that “Although all the federal lands are a part of this story, we will primarily focus on the Forest Service and the national forests because that is where the major debates occurred that have profoundly influenced public land policy,” particularly with reference to ecosystem management (Caldwell et al 1994). Although these authors do not make the link to ocean governance, their explorations of Forest Service challenges highlight issues strikingly familiar to ocean policy experts.

2.4 Comparing the U.S. EEZ and National Forests: A preliminary sketch

This section briefly highlights aspects of National Forests that appear to exhibit intriguing similarities to the ocean setting. This initial comparison is more descriptive than analytic; later versions, to be developed in Chapters 3 and 6, will offer greater detail and be underpinned by theory and data.

Multiple use mandates: Both National Forests and the EEZ allow for many overlapping uses, including:

- living resource extraction (primarily timber and forage on land and fish in the sea);
- recreation (both motorized and lower impact);
- provision of water (with attention to quality, quantity, and location);
- energy production (oil, gas, and renewable);
- minerals mining (both high value ores and various types of aggregates);
- transportation corridors (for commercial and recreational purposes);

- wildlife observing and harvest by recreational users; and
- preservation of relatively pristine natural areas for research, ecosystem services, and aesthetic or moral reasons.

Significantly, neither space has been assigned a clearly dominant use by Congress unlike, for example, the National Parks. Although there are processes in place to designate wilderness areas in forests and marine protected areas in the EEZ, they occupy a small fraction of the total space and rarely exclude all other activities. For the most part, managers are expected to accommodate a mix of potentially competing users.

Stressed but intact and diverse ecosystems: National Forests and oceans both include diverse, complex ecosystems (more so than, for example, BLM lands), with huge variability depending on latitude, altitude (or depth), nutrients, and water characteristics (availability on land, chemical composition and temperature in the sea). Both areas have experienced historic over-extraction of living resources and related habitat degradation (decades earlier in forests because of their greater accessibility to people), and agency managers have reacted by instituting a variety of more or less successful measures to slow or reverse the declines.

Conflicting stakeholders: Although public lands and ocean waters are to be managed for all citizens, the values and interests among different industries, socio-economic segments, and geographic constituencies often conflict, leading to thorny challenges for managers. In both settings, tensions arise between long-standing traditional users,

generally loggers on land and fishers in the sea, and growing demands from newer users, such as renewable energy advocates. Communities that live near, or work in, forests and ocean waters often have strong, multi-generational ties to those areas but relatively little power, while national associations, representing commercial or environmental interests, press their agendas with the help of greater access and resources.

Transition from laissez-faire to more structured management: As outlined earlier in this chapter, both National Forests and the EEZ experienced transitions over the 20th century from conditions of open access, with little centralized control, to heavily regulated spaces with complex combinations of property rights, including rights of access, withdrawal, management, exclusion, and alienation (McCay 1996).

Public-trust responsibilities: Areas controlled by the federal government are intended, in a general sense, to be managed for the benefit of the nation's citizens. However, both public land and ocean scholars have long argued about how specific, binding, and actionable that obligation should be, and whether or not a strict "public trust doctrine" applies in these areas (e.g., Wilkinson 1980, Turnipseed et al 2010).

Overlapping laws and authorities: Although public land agencies have been given designated areas to manage (e.g., National Parks, National Forests, etc.) while ocean agencies typically manage specific activities or functions (e.g., fisheries, shipping, safety), neither approach results in clear, undivided authority. In both arenas, conflicts

arise among federal, state, tribal, and local authorities, administrative units responsible for different areas or uses, and elected bodies with different constituencies and values.

Limited data and understanding: Both land and ocean managers must make most of their decisions in the face of incomplete data and uncertain understanding. The uncertainties encompass everything from ecosystem functioning to social and cultural values and economic consequences. Because of the large, often inhospitable areas involved, additional data collection is quite expensive, particularly so in the ocean as one moves further from shore.

Human connection: Humans feel strong connections to both forests and ocean spaces, as is evident from the proliferation of membership-funded organizations advocating the protection of both areas.¹⁴ Although many observers (e.g., Barr and Lindholm 2000, Orbach 2003, Shackeroff et al 2009) have suggested that human understanding, familiarity, and emotional connection is greater for forests than for the ocean, such statements are difficult to either prove or falsify. Because humans live on land, it seems plausible that a larger number of people over a longer time have been in close contact with landscapes than with seascapes. Certainly U.S. attention to the active management of forests pre-dates similar efforts in the ocean. Although humans cannot survive for long in ocean waters, this has not prevented the ocean from playing a central role in the

¹⁴ Such groups range from small, local clubs to multi-million dollar international organizations and are far too numerous to catalog.

human story for millennia. Fish and seafood formed an important part of the diet of Indians in coastal California from about 10,000 BC (Erlandson et al 2011). The ocean has played a central role in literature, from Homer's *Odyssey* to Melville's *Moby Dick*, and ocean creatures are depicted in prehistoric art. The fact that fifteen of the world's twenty largest cities are along the coast (American Shore and Beach Association 2010) also attests to the fundamental role the ocean plays in human economic and social life.

2.5 Summary

This chapter laid out the broad contours of two types of federally-controlled space, the EEZ and the public lands, providing brief histories of each and summarizing their respective agency structures. Among the many types of public lands, the National Forests appear to be most comparable to the EEZ, for ecologic, social, and governance reasons. Although the histories and ecology of forests and the ocean clearly differ in many ways, there are a number of interesting similarities, sufficient to justify further scrutiny and a more systematic analysis. Chapter 3 will present such a structured approach for comparing these two arenas based on well-developed theories of policy analysis, and Chapter 6 will revisit the comparison to see what management lessons might be shared between the two communities.

3. Is the U.S. Exclusive Economic Zone like Public Land?

3.1 Introduction

In this chapter, U.S. National Forests and the U.S. EEZ are compared in a more structured, systematic way than in Chapter 2—or than has been attempted by previous authors. The comparison draws on the work of scholars who have spent decades studying human institutions, constructing frameworks for policy analysis, and testing theories of the policy process, particularly in the realm of natural resource policy.

The next section explores how other authors have compared land and ocean settings, and what similarities and differences they found. This is followed by a review of several competing and overlapping policy analysis frameworks. The elements, or building blocks, fundamental to each analytic framework are identified and then used to compare policy features associated with public spaces on land and in the ocean. If the system characteristics considered most important by widely adopted policy frameworks prove sufficiently similar in the two settings, there is justification to look at the relatively long history of management successes (and failures) on land and make inferences about how they might play out in the still developing ocean management setting (de Jong et al 2002).

3.2 Some previous land-ocean comparisons

As suggested in Chapter 2, there appear to be some similarities between U.S. federal lands and the federally-controlled Exclusive Economic Zone (EEZ), particularly in their human uses, economic and governance characteristics, and stakeholder composition. The two areas have also experienced a number of similar policy changes over time, although these parallels have not been widely explored or exploited by managers. A small number of scholars has attempted to compare terrestrial and marine settings for the purpose of informing policy, but each of these efforts has been limited for a number of reasons.

One stream of comparative research is linked to the creation of marine reserves for ecosystem protection. Its primary focus has been on comparing *ecological* processes on land and in the sea (e.g., Steele 1985; Carr et al 2003; Kearney et al 2012) to ascertain whether design principles for establishing terrestrial parks would be helpful in the ocean. These papers identify significant bio-physical differences related to connectivity, reproduction, and physical structure and, based on that, conclude that “land is fundamentally different to [*sic*] water” (Kearney et al 2012) for the purpose of reserve design. However, these scientists do not examine any of the social, institutional, or governance considerations that would profoundly affect reserve promotion, siting, and implementation. Barr and Lindholm (2000) are also interested in fully-protected marine reserves as a means to conserve ocean ecosystems and they look to National Parks and

the Wilderness Preservation System on land as templates. They suggest that the legal tools available for conservation on land should be extended into ocean territory but, again, do not examine the underlying social and institutional factors that would facilitate or impede that option.

A second line of analyses corresponds with the surge of interest in marine spatial planning (MSP) over the last decade, as discussed in Chapter 1. These studies compare MSP to traditional land use planning, in part as a rhetorical device intended to ease concerns about MSP by placing it in a more familiar context (e.g., Tyldesley and Hunt 2003; Gopnik 2008). This was particularly effective in Europe where land use planning is well-established and generally accepted as a desirable role for government (Tyldesley and Hunt 2003) but backfired in the U.S. context for political and cultural reasons.¹ Whatever its rhetorical value, from an analytical perspective the analogy has serious weaknesses. Tyldesley and Hunt present a rather long list of differences between MSP and land use planning, including issues of property rights, human population density, extent of ecosystem disruption (noting that most cities and towns have virtually

¹ Land-use planning, and its implementation via zoning overlays, remains highly contentious in the U.S., where conservative commentators see it as unjustified government interference in the rights of property owners (see e.g., Martin, S. "Ten good reasons why zoning is bad idea." *Houston Chronicle Op-Ed*, Sept. 12, 1993). By importing the European analogy between MSP and land use planning, MSP proponents in the U.S., primarily from NGOs and academia, have generated fierce opposition from property-rights advocates and conservative politicians (e.g., "Top 10 Things to Know About President Obama's Plan to Zone the Oceans," Press Release from the U.S. House of Representatives Committee on Natural Resources, September 30, 2011, accessed at <http://naturalresources.house.gov/news/documentsingle.aspx?DocumentID=262435>).

obliterated the pre-existing ecosystem), presence of major infrastructure, and more. At their core, the differences revolve around the fact that a central function of land use planning is to manage and harmonize uses of private land in a crowded, human-occupied setting—not a central issue for ocean planners.

Acknowledging these fundamental differences, Kidd and Ellis (2012) use a different approach for extracting lessons for MSP from land use planning in the United Kingdom, which they refer to as terrestrial spatial planning, or TSP. MSP proponents, they assert, have so far uncritically embraced TSP's "rationalist paradigm" of planning as "a positive, visionary, and reformist activity." However, to the extent that MSP wraps itself in this mantle of technocratic planning for the common good, it must also be open to the critiques of that model, subjecting itself to "the full rigor of ethical, methodological, and epistemological challenge" that has been levied against terrestrial planning. Kidd and Ellis review decades of accumulated theoretical and practical literature on TSP, describing how the notion of a value-free planning process has been widely challenged. According to its critics, planning is "inherently political in character" and must be approached with flexibility and open-mindedness, draw on a broad range of expertise, and be sensitive to power imbalances among stakeholders. This thoughtful paper and the profound questions it raises about the planning enterprise in general, and MSP in particular, are revisited in Chapter 7. However, for the purposes of this chapter,

Kidd and Ellis do not provide any template for systematically comparing institutions and policies on land and in the ocean.

A third category of papers pinpoints public lands as the policy landscape most analogous to the ocean, similar to the current study. Gale and Miller (1985) relate the management of National Forests under the National Forest Management Act to fisheries management under the Magnuson-Stevens Act, drawing some interesting comparisons. However, they fail to recognize the fundamental distinctions between managing a multiple-use *space* (National Forests) and a specific *resource* (marine fish) and make no reference to the broader policy literature. Rather, as long-time scholars of forests and fisheries respectively, they admit that their discussion is based simply on “the ways in which we have observed these resource management systems to behave.” One of the main conclusions they draw from their observations is that forest management is more “standardized, impersonal, and technical,” while fisheries management is “less successful in separating subjective ... from objective arguments,” claims that are not uniformly supported by other analyses such as those discussed in Chapter 4.

Others have approached the public land/ocean comparison from a legal perspective. A 2007 law review article by Salcido explores interactions between state and federal authorities on public lands and in the ocean. Based on a detailed exposition of the governing laws in both areas and a critical review of dozens of related court opinions, Salcido concludes that improved cooperation between state and federal

authorities was key to achieving better results on land (based on both process-oriented and substantive measures) and that similar cooperation could benefit coastal and ocean management. In another law journal, Duff (2004) reviews the statutes that govern offshore fishing, oil extraction, and wind energy and concludes that such a single-sector legal framework will be inadequate to deal with growing demands on ocean space and resources. In the final section, he states that: “[The] models that ought to be considered in assessing ocean space/resource management issues are those models that have been employed to manage other public areas and resources,” and suggests that government “may be able to emulate some of our public land successes while avoiding certain of our public land debacles” by mimicking the principles of public land law. The current study attempts in part to answer Duff’s call.

Finally, Shackeroff et al (2009) take a different approach, presenting an evocative portrayal of “oceans as peopled seascapes,” stressing the importance of fully including humans in any exploration of ocean ecosystems. The authors discuss the strong sense of place experienced by coastal communities and advise decision-makers to “situate, or contextualize, marine management strategies socially, historically, and geographically.” Although the essay does not set out explicitly to compare ocean and land, its conclusion proposes that “human-environment relationships in terrestrial environments” may be relevant to understanding the ocean, with three distinctions:

- (1) more limited ecological data in the ocean;²
- (2) ecological and evolutionary differences stemming from the open, three dimensional nature of ocean processes;³ and
- (3) “fundamental differences” in the way land-dwelling, air-breathing humans interact with the land and the sea.

Unfortunately, the authors do not expand on the distinctions, explain why these three are deemed to be the most significant ones, or explore how such differences might be expected to affect policy development and implementation.

Each of the analyses described above, at some point in its text, provides a list of selected social or ecological variables and describes how they are manifested on land and in the ocean. These comparisons are thought-provoking and overlap in many cases, but the methods behind them are essentially ad-hoc, drawing on the particular experience, expertise, and viewpoints of their creators, or the purview of their primary academic disciplines. In fact, they exhibit many of the common pitfalls of policy analysis identified by Imperial and Yandle (2005) and Sabatier (2007), such as unstated assumptions, perceptual biases, and lack of analytic rigor.

² Ironically, the authors do not call attention to even more severe limitations in social and economic data.

³ Echoing findings by Steele (1985) and Carr et al (2003) in the context of marine reserves.

To supplement these authors' efforts, and position the land-ocean comparison on more solid theoretical ground, this study looks closely at developments in the field of policy analysis.

3.3 The study of governance and public policy

3.3.1 Building blocks

The process of designing, advocating, implementing, and refining public policy is complex, involving interactions among many actors, with different needs, viewpoints, and authorities, at different scales, over extended time periods. When public policy also involves the use and protection of natural resources, these difficulties are exacerbated by the complexity of ecosystem behavior and our limited understanding of it.

Many scholars have attempted to discern and explain patterns in the initiation and evolution of public policy. Typically they construct a "framework" that identifies the variables and processes expected to be important. Frequently, they also propose a "theory" of how the framework elements are likely to interact to produce different outcomes. Before exploring these policy frameworks and theories, it is useful to set the stage by defining some common terms, as summarized in Box 3.1.

Any discussion of institutions and policy change must be concerned with the nature of the *goods and services* being created, distributed, and exchanged. These can range from childcare in a metropolitan region (Bushouse 2011) to fish in a remote coastal setting (Basurto and Coleman 2010). Fortunately, there has been significant work

Box 3.1: The language of policy analysis

Just as a practicing brain surgeon is unlikely to understand the terminology of an academic neuroscientist, most policymakers and managers are unfamiliar with the vocabulary employed by policy scholars. Even within the academic community, some terms are not used consistently across investigators. Since a number of potentially unfamiliar or confusing terms will be used in this chapter, brief definitions are provided below.

Frameworks and Theories: *Frameworks* are used to organize inquiry by identifying and categorizing the factors (or elements, or variables) and processes deemed most relevant to understanding some phenomenon. *Theories* propose causal relationships among the elements in a framework, generating explanations and predictions about likely processes and outcomes. Theories are often based on particular assumptions about human behavior and the nature of policy change. Note that the basic elements specified in a framework can be compatible with many different theories.

Rational Self-maximization and Bounded Rationality: Traditional economics assumes that individuals choose a course of action after rationally weighing all available choices and selecting the option that yields the greatest net personal benefit, i.e., that they are *rational self-maximizers*. These assumptions have been modified by findings in behavioral psychology showing that real human decision making is constrained by partial information, limited cognitive abilities, and tightly-held beliefs or biases, and that altruism can play a significant role in behavior, i.e., that our rationality is *bounded* by capacity, culture, and context.

Institution: The term institution is widely used in the policy literature, although it has not always been defined consistently. Hodgson (2006) takes 25 pages to answer the titular question “What Are Institutions,” concluding that “institutions are systems of established and embedded social rules that structure social interactions.” McGinnis (2011) states that “institutions are human-constructed constraints or opportunities within which individual choices take place and which shape the consequences of their choices.” In the policy analysis context, an *institution* (i.e., a set of rules) should be considered distinct from an *organization* (a defined group of individuals with some common purpose), although the two are often treated as synonyms in popular usage (see e.g., Oxford Dictionary 2012).

Rules, Norms, and Strategies: As explained above, institutions are characterized by the set of rules they encompass. However it is useful to break the broad concept of “rules” into more specific categories. Ostrom (2005) presents a detailed institutional grammar

Box 3.1 (continued)

that distinguishes between rules, norms, and strategies. *Rules* determine: (a) who, (b) is required, permitted, or prohibited, (c) to do what, (d) under what conditions, and (e) what the consequences of rule-breaking will be. A rule does not have to be derived through a legislative or other formal process, creating a further distinction between actual rules-in-use (*de facto* rules) that apply in a given situation and rules-in-form (*de jure* rules) that are formally declared or written down but may or may not be commonly understood, followed, or enforced. *Norms* are cultural prescriptions that exist as part of the moral code in a community, sometimes called ethical codes or social obligations. Like rules, norms guide the choices and actions of individuals but, unlike rules, do not have an explicit enforcement mechanism beyond social pressure. Less formal than rules or norms, *strategies* are plans of action that guide what participants do under certain conditions.

Governance: *Governance* is the process used for creating rules, norms, and strategies. Governance can be *self-organized* (community members actively participate in designing and modifying the rules that govern them), *monocentric* (the ability to make and change rules is vested in a single authority), or *polycentric* (overlapping or nested authorities interact to create rules).

Goods and Services: *Goods* are tangible things needed or desired by individuals or organizations, from iron ore for steel production to food and clean water. *Services* are actions that fulfill someone's needs, from car repair to climate regulation. Note that goods and services can be supplied by other individuals or through the functioning of ecological processes.

Sources: These definitions combine elements from Ostrom 2005, Hodgson 2006, Schlager 2007, McGinnis 2011a, and Emerson et al 2012.

dedicated to understanding and classifying such goods and services (e.g., Schlager and Ostrom 1992, Hanna et al 1996). First, scholars identify two important characteristics of the resource under investigation. *Subtractability* is the extent to which one person's use of a resource diminishes its availability to another person. For example, fish are highly subtractable (if I catch and eat a certain fish, you will not) while clean air is not (my

intake of breath does not detract from yours). *Excludability* describes the ease of preventing access to a resource. A car is highly excludable (assuming a lock and key are available) while a wilderness hiking trail is not (barring hundreds of miles of fencing). The four possible combinations of these two attributes create four types of goods and services, as shown in Figure 3.1. What's more, the categories in Fig. 3.1 merely describe the nature of the goods or services themselves. It says nothing about the *property rights* assigned to the resources, i.e., who can use, manage, and sell the resource, or about the *management system* imposed in any particular institutional setting, such as a free market or communal system. For example, although federally-owned spaces include primarily public goods and common pool resources, the existence of private leases, concessions, quotas, and similar management tools complicates that picture. These important distinctions have often been overlooked, to the detriment of sound policy (McCay 1996, Imperial and Yandle 2005).

	Low Subtractability	High Subtractability
Low Excludability	Public goods (e.g., clean air, hiking trail)	Common pool resources (e.g., marine fish)
High Excludability	Toll (or club) goods (e.g., cable television)	Private goods (e.g., a car)

Figure 3.1: Categories of goods and services

Another concept worth introducing in connection with resource management is *the public trust*. In the financial world, a trustee is required to “protect, conserve, and safeguard the assets of the trust for the benefit of all the [beneficiaries] ... [and] must take such action with respect to the trust property as will be most conducive to its welfare.” Furthermore, the trustee is liable for any losses resulting from a failure to exercise care, prudence, and diligence or for misappropriation or waste of trust property (Applegate 1977, citing 90 CJS trusts §270). This definition of a trustee’s duties and responsibilities has permeated common understanding (see e.g., Black’s Law Dictionary 2009, Merriam Webster Dictionary 2011).

In the context of natural resources management, the public trust doctrine (PTD) descends from a long line of Roman and English common law that obliges “sovereigns” to hold certain lands and waters in trust for their citizenry. In the United States today, the PTD protects the public’s rights to fishing, navigation, and commerce on and over the beds of navigable waterways and submerged lands under tidal waters, both of which are controlled by state law (Turnipseed et al, 2010).⁴ Many legal scholars have explored the extension of the PTD to federal public lands (e.g., Sax 1970, Applegate 1977, Wilkinson 1980) and more recently to the federal EEZ (e.g., Babcock 2009, Turnipseed et al 2010, Sun 2011). In both domains, the general conclusion has been that: (1) U.S. courts

⁴ Many states have gone further by enshrining the PTD in their constitutions. For example, Article I, Section 27 of the Pennsylvania constitution states that, “Public natural resources are the common property of all the people, including generations yet to come. As trustees of these resources, the [government] shall conserve and maintain them for the benefit of all the people.”

have not established the PTD in common law; (2) Congress has not enacted a statutory PTD; and (3) the U.S. constitution does not impose public trust duties on the federal government.⁵

Nevertheless, many courts, including the Supreme Court, have used trust-like language in their opinions regarding resource management,⁶ and many environmental statutes create trust-like duties for agencies.⁷ The U.S. Commission on Ocean Policy refers repeatedly to the federal government's 'public trust' responsibilities toward ocean resources (e.g., USCOP 2004, pp. 61, 76, 274, 333, 334). Perhaps the critical difference between such broad references to trust-like duties and a true PTD is enforceability (Turnipseed et al 2010).

With these definitions in mind, the following section summarizes two of the most well-developed and widely accepted policy frameworks—Institutional Analysis and Design and the Advocacy Coalition Framework—followed by a discussion of amendments and critiques that have been suggested to improve those constructs. An

⁵ Sun (2011) suggests that public trust rights reside in the catch-all Ninth amendment to the U.S. Constitution, "The enumeration of certain rights shall not be construed to deny or disparage others retained by the people," although others have not adopted that expansive view.

⁶ As far back as 1911, the U.S. Supreme Court stated that "the public lands are held in trust for all the people of the United States" (220 U.S.C. 523, 1911). Wilkinson's 1981 review of dozens of related cases since that time concludes that the recurring use of trust language by courts "indicates an awareness that the special values of the federal lands ... have been gradually but indelibly imprinted on our national consciousness."

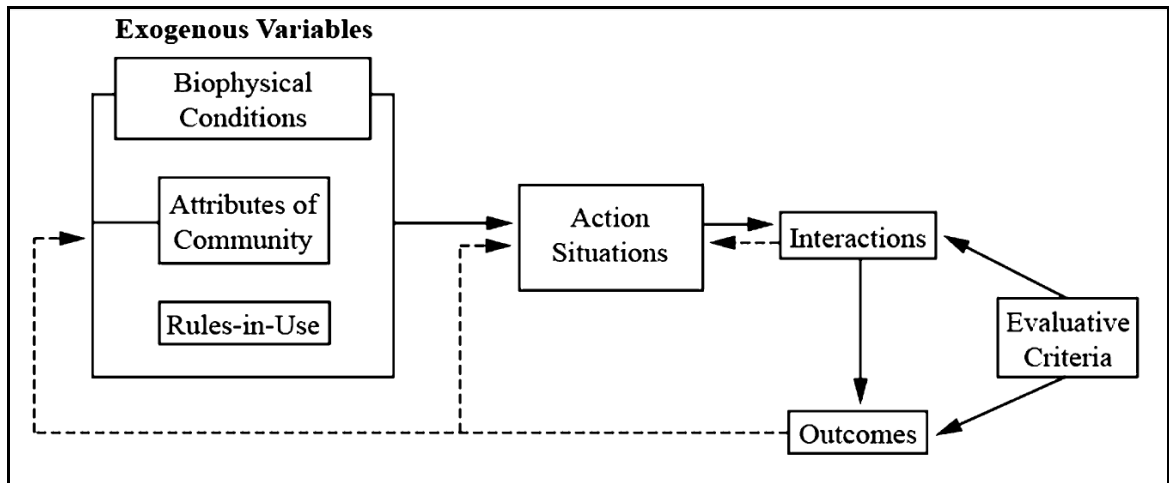
⁷ For example, the Superfund Act of 1980 refers to the President as the "trustee ... [of] natural resources over which the United States has sovereign rights or natural resources within the territory or the [EEZ] of the United States." Similarly, the National Environmental Policy Act instructs the federal government to "fulfill the responsibilities of each generation as trustee of the environment for succeeding generations" (Turnipseed et al 2010). In the context of public lands specifically, Wilkinson (1981) asserts that "modern [public land] statutes set a tone, a context, a milieu. When read together, they require a trustee's care."

understanding of the internal structure and reasoning behind these approaches to policy analysis will provide a firmer basis for exploring and comparing public land and ocean management.

3.3.2 The Institutional Analysis and Design framework

One widely adopted rubric for policy analysis is the Institutional Analysis and Design (IAD) framework. Developed based on contributions from many scholars over several decades, the current conception of the IAD framework is laid out most thoroughly in Ostrom, 2005. The intent behind this effort was to identify the basic building blocks of all policy situations, from U.S. government-run urban poverty programs to community-based fisheries management. In Ostrom's words, "my deep conviction [is] that underlying the immense variety of surface differences, all repetitive situations faced by human beings are composed of nested layers composed of the same set of elements."

The IAD framework is based on the idea that all policy results from the cumulative actions of individuals who are boundedly-rational (see Box 3.1), in pursuit of multiple goals for themselves and others, sensitive to context, fallible, and capable of learning over time. These individuals, sometimes grouped into organizations, operate as participants within what are called "action situations." The participants interact within the context of a number of exogenous variables to produce a set of outcomes (see Fig. 3.2). This process is then repeated over time.

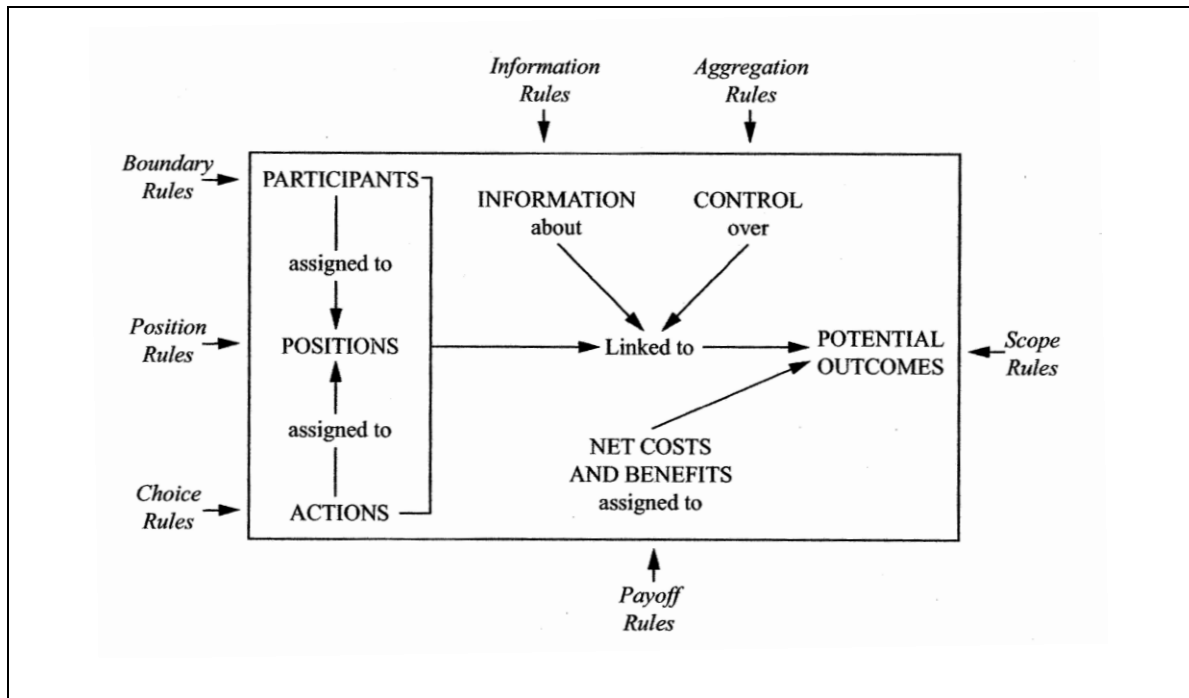


Source: Ostrom 2005

Figure 3.2: Components of the IAD framework

The framework identifies three important contextual elements, or exogenous variables. First, the *biophysical setting* can be characterized by the type and nature of goods and resources present, including their extent, availability, mobility, subtractability, and excludability. Second, *community attributes* include such elements as cultural history, shared knowledge, trust and reciprocity, language, values, diversity, size, inequalities, etc. Factors similar to these two are included in virtually all approaches to policy analysis.

A more distinctive contribution of the IAD framework is its focus on, and detailed exploration of a third factor: the *rules-in-use* that guide participants' actions. Seven kinds of rules are identified, corresponding to the seven elements that make up an action situation (Fig. 3.3).



Source: Modified from Ostrom 2005

Figure 3.3 The seven elements of an action situation (in uppercase) and the types of rules affecting them (in italics)

Boundary rules determine the participants involved (e.g., City Council members).

Position rules determine the roles of various participants (e.g., the Mayor).

Authority rules determine what actions are possible for each participant (e.g., introducing or vetoing a bill).

Information rules determine what each participant knows about how actions will affect outcomes (e.g., if a certain bill is passed, a secret bribe will be paid).

Aggregation rules determine how the participants' combined actions of will influence outcomes (e.g., 10 "yes" votes are needed for passage).

Payoff rules determine the costs and benefits to each participant of a given outcome (e.g., money, endorsements, prestige).

Scope rules determine the possible outcomes (e.g., the bill can pass, fail, be tabled, or be amended).

Action situations can be nested, such that the outcomes of one create the context for another. Thus rules exist and can be amended at different levels, with impacts on other levels. In the terminology of the IAD framework, practical choices by individuals concerning everyday behavior are made at the *operational* level (“*What fish will I catch today?*”). At the *collective choice* level, sets of rules are constructed that authorize participants and delimit possible actions at the operational level (“*Only recreational boats of a certain size can catch a certain type of fish*”). At the *constitutional* level, the participants and processes for making collective choice decisions are defined (“*A committee made up of five commercial and five recreational fishers appointed by the local leader will decide who can catch what*”). Although participants in a given situation may not be fully aware of this potentially complex web of rules and interactions, it is the policy analyst’s job to tease them out in order to understand what outcomes are likely to occur and why.

Evaluation (the leftmost box in Fig. 3.2) is another important element of this framework, in keeping with the assumption that humans learn from experiences over time. Participants, as well as external observers, can use various evaluative criteria to analyze both the interactions, i.e., the *process* used to reach outcomes, and the outcomes

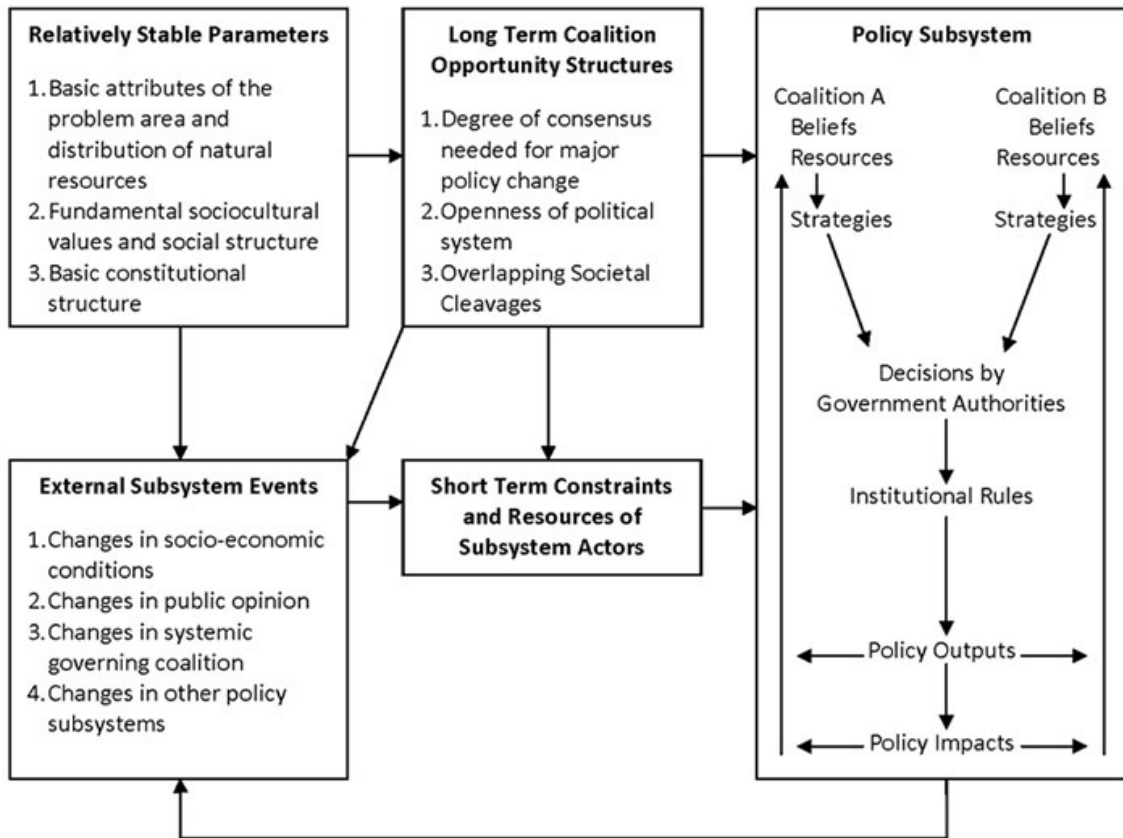
themselves. One approach to evaluation is to assess the transaction costs incurred, such as information costs, coordination costs, and strategic costs. The relative performance of different institutional arrangements can also be evaluated by examining their efficiency, equity, accountability, adaptability, legitimacy, and sustainability (e.g., Imperial 1999, Ostrom et al 1994, Imperial and Yandle 2005, Ostrom 2005). Finally, analysts must not forget to consider whether the outcomes produced by a particular institutional arrangement, set within a specific context, are those desired by outside agencies or by participants themselves. Evaluation can be formal or informal and provides essential feedback, allowing participants to learn and adapt their choices and actions over time. As explained by Ostrom (2005), “accrued learning and knowledge have led those with good information about participants, strategies, ecological conditions, and changes in technology and economic relationships over time to craft sustainable institutions.”

3.3.3 The Advocacy Coalition Framework

Another widely adopted policy analysis tool is the Advocacy Coalition Framework (ACF), first proposed by Sabatier in 1986 and applied, tested, and modified by many others over the subsequent 25 years (Sabatier and Jenkins-Smith 1999, Leach and Sabatier 2005, Weible 2006; Appendix 7.2 in Sabatier and Weible 2007 provides an extensive list of ACF-based studies). The most recent and thorough exposition of the ACF (Sabatier and Weible 2007) incorporates revisions made in response to critiques and

suggestions from other scholars (e.g., Schlager 1995, Weible 2006, Kingdon 1995). Figure 3.4 illustrates the main elements and pathways in the current ACF.

As might be expected of two tools designed for the same general purpose, the IAD and ACF share similar concerns—such as why certain policies come into use and how they change—and include a number of related elements, such as features of the external context, the individuals and organizations involved in or affected by the policy



Source: Sabatier and Weible 2005

Figure 3.4: Diagram of the Advocacy Coalition Framework

in question, and the strategies and rules that produce particular outcomes. However, there are also important differences between the assumptions and foci of the two frameworks.

The ACF's basic unit of analysis is the *policy subsystem*, analogous to the IAD's action situation, bounded by a geographic and substantive scope appropriate to the question being investigated.⁸ A policy subsystem is shaped by the biophysical, social, and governance systems within which it is located (the two boxes in the upper left of Fig. 3.4), similar to the IAD framework's exogenous variables. Policy subsystems can exist at many different scales, but are defined by the existence of an enduring community of government officials (legislative, executive, and judicial), interest groups, NGOs, media, and researchers with expertise or goals in a particular policy area.

Individuals are again assumed to be boundedly rational, with cognitive constraints as explained above. However, drawing on findings from the fields of social psychology and behavioral economics (e.g., Munro and Ditto 1997, Quattrone and Tversky 1988), the ACF also considers individuals' internal *belief systems* to be an essential explanatory feature for policy development.⁹ Personal beliefs are known to filter available information, exaggerating the influence and bad motives of opponents and magnifying an individual's perceived losses relative to gains. When beliefs are

⁸ Thus a policy subsystem can be defined as "public housing in Peoria" or "U.S. national housing policy."

⁹ The IAD framework does not attempt to assess participants' internal beliefs. However, the identification of shared social norms (a particular kind of rule) that influence behavior may play a similar role in the analysis.

sufficiently strong, research suggests that they can outweigh more obvious material self-interest (Weible 2006).

The ACF posits three levels of belief: *deep core beliefs*, one's fundamental enduring values; *policy core beliefs*, normative views about policy options that are slow to change; and *secondary beliefs* that are empirically based and amenable to change in light of new information. These ideas about human belief systems undergird the eponymous element of the ACF, the *advocacy coalition*. Advocacy coalitions are composed of those members of a policy subsystem who develop trust as a result of overlapping core beliefs and are thus willing to invest in coordination to achieve shared policy goals—a particular form of collective action. Examples might include wilderness advocates, large-scale commercial fishermen, marine protected area proponents or opponents, small business owners, etc. The degree of investment and coordination in the coalition will depend on the extent of overlap in core beliefs.

For an advocacy coalition to be successful, it requires (1) adequate resources, (2) access to suitable venues of influence and decision-making, and (3) a setting that makes change possible. Coalition *resources* may take the form of political access, public support, information (such as scientific studies, polls, or legal analyses), members, leadership and, of course, money which can often be used to obtain the other resources. Strong leaders, also referred to as “public entrepreneurs” (McGinnis 2011), can be particularly important in crafting new policy paradigms and solutions, attracting other resources,

and recognizing when the moment is ripe for change. With resources at hand, coalitions must seek out *venues* where they might have influence, such as electoral politics, referenda, legislative hearings and bills, media outlets, administrative appeals, or judicial proceedings. Given sufficient resources, appropriate venues, the right setting, and time, it is possible to achieve *minor policy change*, i.e., changes to a specific policy within a larger policy subsystem. As a result of resource imbalances and differential access to key venues, policy subsystems often become dominated by one advocacy coalition.

However, to achieve *major policy change* that fundamentally alters the policy subsystem, more profound shifts are needed. In its original formulation, the ACF saw *external shocks*, i.e., major socio-economic changes, shifts in public opinion, a turnover in the governing coalition, or impacts from other policy subsystems (the lower left-hand box in Fig. 3.4) as the only avenues for major change. Because the ACF assumed that core beliefs were fairly intransigent, external shocks were considered necessary to shift power toward a minority coalition.

Since that time, critiques of the ACF and additional research have led to the addition of two more pathways for major change (not shown in Fig. 3.4). The first is via *internal shocks*, landmark events that reveal a fundamental failure within the policy subsystem, for example, the 2009 oil spill in the Gulf of Mexico that exposed serious flaws in the offshore drilling regulatory system. Such shocks can alter core beliefs within

the dominant coalition as well as increasing resources — particularly public opinion and new information-- available to the minority coalition.

The second newly recognized pathway to major change is through *negotiated agreement* accompanied by long-term *policy-oriented learning*. ACF scholars have drawn from two decades of practical and theoretical progress in the field of Alternative Dispute Resolution (ADR) to help develop this component of the framework (e.g., Susskind et al 1999, O’Leary and Bingham 2003). Both ACF and ADR see coalitions of individuals with similar beliefs and distrust of outsiders as central elements of the policy system, and both believe that policy change will be difficult unless such tightly-held beliefs can be modified. But ADR studies have found that negotiated agreements can be reached between opposing coalitions, particularly when a ‘hurting stalemate’ develops whereby no one is happy with the status quo but no coalition has the ability to force change. Additional findings from the field of ADR, many developed in overcoming disputes related to National Forest management, are discussed below.

3.3.4 Other policy elements of interest

Although the two policy analysis frameworks discussed above have been identified as the most well-developed and widely adopted (Schlager 2007), other scholars have suggested additions, modifications, and alternative formulations to better account for elements they consider under-represented or ignored by the main frameworks. Some of these perspectives are highly relevant to the public land and ocean

settings; three of them are discussed below, including local public economy studies, social construction theory, and collaborative governance.

Employing many of the same elements found in the IAD framework, the study of local public economies (LPEs) concerns itself with situations characterized by overlapping, multi-jurisdictional, polycentric governance arrangements (Oakerson and Parks 2011). Originally focused on metropolitan areas, where a complex web of governmental agencies and private and nonprofit organizations provide a mix of goods and services to residents, Oakerson and Parks propose that some LPE research findings may also be applied to policy analyses of large ecosystems, including their human components, which often exhibit similar institutional complexities. They suggest that “LPE analysis is a logical extension of IAD’s micro-level work to a meso-level populated by multi-organizational, nested structures of governance.” Three concepts are highlighted as particularly important in broadening the application of LPE.

First, a distinction can be drawn between the *provision* and *production* of goods and services. In other words, one entity may ensure that a service will be available while another actually renders the service. For example, municipal trash collection may be organized by individual building managers, neighborhood associations, or city governments (provision) while the trash is picked up by either public employees, monopolistic service companies, or multiple private contractors (production). Similarly,

Forest Service staffmembers typically determine the locations and volumes of timber sales, while logging companies and mills harvest and process the wood.

Second, LPE scholars have studied political and functional *fragmentation* within communities. Ocean management has been frequently criticized as overly fragmented with too many competing authorities (e.g., USCOP 2004; Crowder et al 2006). However, research refutes the blanket vilification of that state of affairs, finding that it can serve as a well-adapted, geographically and functionally differentiated, polycentric governance structure where “multiple independent actors interact to produce an outcome that is commonly valued” (Oakerson and Parks 2011). However, for such a system to function well, the different centers of authority must recognize their mutual interdependence and a constitutional-level mechanism must exist to modify the structure of authorities as needed.

From this follows the third LPE concept highlighted by Oakerson and Parks: the role of *citizen voice* in shaping the provision and production of services. The strength of citizen voice depends on local governance institutions (i.e., the rules that guide local decisionmaking, equivalent to the IAD collective choice level) and the rules about how such rules can be altered (the IAD constitutional level). Polycentric governance systems are generally thought to provide more “civic space” for non-governmental actors to participate in governance. As will be seen in later chapters, citizen voice has played a major role in National Forest management. These three topics (provision vs. production,

fragmentation vs. polycentricity, and citizen voice) are likely to be useful in understanding the management of large eco-regions on land and in the ocean that also provide environmental goods and services through multi-jurisdictional arrangements.

Another group of amendments to the main policy frameworks comes out of social constructivist perspectives. As explained by Clement (2010), a major limitation to the application of the IAD framework is its “inadequate consideration of the role of power” in crafting institutions. Who holds power, how is that power exercised, and what historical context created the current distribution of power? Different experiences of power will color participants’ perceptions of their options. Steins and Edwards (1999) agree, suggesting that outcomes from action situations will depend critically on “how actors ‘socially construct’ their everyday reality,” in other words, how they understand their social, political, and physical settings. This situation is evident in the ocean setting, with conflicts between individual users and multinational companies, local and global environmental agendas, commercial and recreational fishermen, and others.

Clement suggests that policy analysts look more closely at community *discourse* as an indicator of prevalent social constructions and their role in constraining policy alternatives. Ingram et al (in Sabatier 2007) go further to propose an alternative policy framework that focuses foremost on how social constructions and political power

influence, and are reinforced by, policy decisions.¹⁰ The concepts of power, social construction, and policy discourse have been extensively explored within the fields of sociology and political ecology. However, for the purposes of this study I will follow Clement's relatively simple "fix" by thinking of these as additional types of external variables, i.e., new boxes on the left hand sides of Figures 3.2 and 3.4.¹¹

The theories and practice of Alternate Dispute Resolution (ADR) and its sister discipline Environmental Conflict Resolution (ECR) (Wondolleck and Yaffee 2000, Daniels and Walker 2001, O'Leary and Bingham 2003, Marshall 2005) have served as another source of framework modifications. The section describing the Advocacy Coalition Framework above described how ADR findings led to an additional proposed pathway for policy change: negotiated agreement. ADR and ECR researchers have identified several initial conditions that appear to make negotiated agreement possible, such as the existence of a "hurting stalemate," leadership, incentives for participation, uncertainty, and perceived interdependence of the parties, as well as process elements generally associated with successful collaborative outcomes, including trust building, transparency, and development of shared understanding (Bryson et al 2006, Ansell and

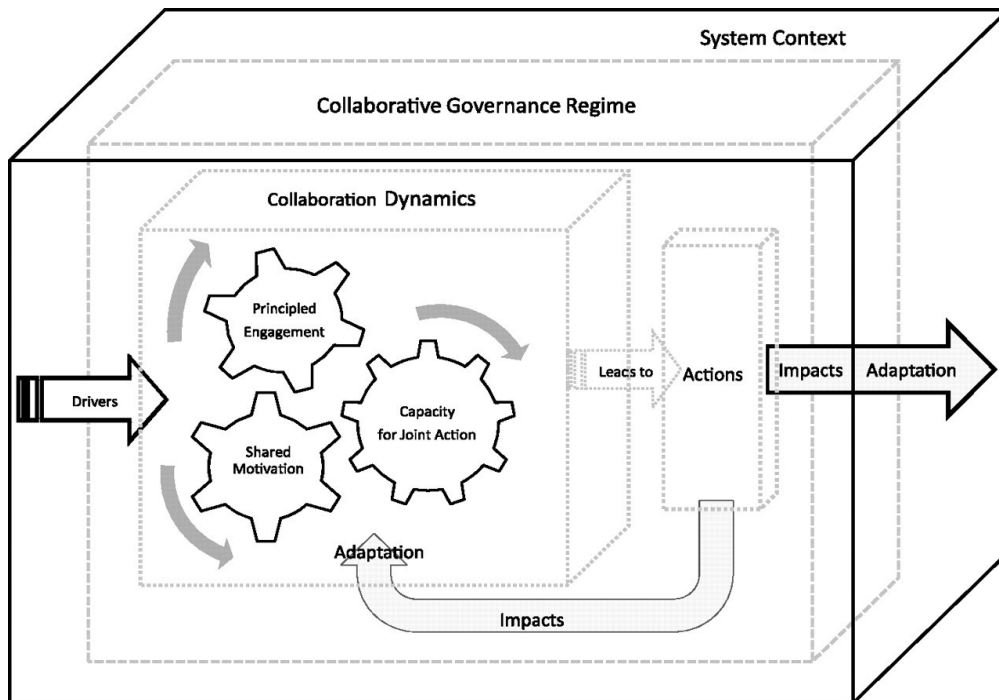
¹⁰ Schlager 2007 argues that the so-called Social Construction Framework actually belongs within the category of theory since it attempts to explain why policies evolve as they do, rather than simply identifying underlying building blocks.

¹¹ An argument could be made that these variables are already contained under the broader heading "Attributes of Community," but social constructivist scholars believe they deserve special attention and are too often ignored by mainstream policy scholars.

Gash, 2008). These findings offer new elements to be considered when analyzing policy change under the ACF.

Another group of ADR/ECR researchers has specifically adapted the IAD framework to study Collaborative Governance, or multi-party, multi-level collaboration (Emerson et al, 2012). Similar to local public economies, collaborative governance occurs when people become engaged across agencies, levels of government, and public and private spheres in order to attain shared outcomes, a situation frequently found in public lands and ocean settings. The modifications suggested are shown in Figure 3.5, introducing new elements to be added to the IAD structure. The system context (outermost box) creates initial *drivers* for collaboration while the collaborative *dynamics*—engagement, capacity for action, and shared motivation—can either propel or deter collaborative actions and outcomes.¹² The “Collaboration Dynamics” box in Figure 3.5 can be thought of as an additional element or step between “Exogenous Variables” and the “Action Situation” in Figure 3.2, primarily affecting the rules about information (*What does each person know?*), aggregation (*How are individual decisions added up?*), and scope (*What is included in the inquiry?*) shown in Figure 3.3. The new elements are derived from ADR/ECR research and correspond closely to the results of a meta-analysis

¹² The theory behind, and additional elements of the Collaborative Governance Framework are explained in detail in Emerson et al 2012, with a particularly helpful table showing the underlying logic model on page 7.



Source: Emerson et al 2012

Figure 3.5: The Integrative Framework for Collaborative Governance

of 137 case studies of successful and unsuccessful collaborative processes (Ansell and Gash, 2008).

3.4 Comparing the U.S. EEZ and National Forests: A systematic approach

At the end of Chapter 2, public lands and the EEZ were compared in broad, descriptive terms, revealing sufficient similarities to merit further exploration. This section returns to that comparison using a more systematic approach that is supported by the two major theoretical frameworks and variations described above. The resource characteristics, governance systems, participants, and policy patterns associated with public lands and waters are evaluated, recognizing that these are the elements

considered most important by policy researchers. Similarities continue to be evident, although the comparison remains incomplete. It will be re-visited once more in Chapter 6, building on the more thorough analysis of National Forest management developed in Chapters 4 and 5.

3.4.1 Scope

The first step in policy analysis is to determine the scope of the system to be studied. Until this point, the two systems of interest in this comparative study have been described as “U.S. National Forests” and the “U.S. EEZ,” but those terms are too general for this phase of inquiry. After all, the U.S. EEZ comprises over 4 million square miles of the ocean, with portions extending from Guam in the Western Pacific to Puerto Rico in the Caribbean and from the Arctic Ocean down to American Samoa. Likewise, the 155 National Forests cannot usefully be treated as a unified whole.

In the ACF, a policy subsystem is “characterized by both a functional/substantive dimension and a territorial one” (Sabatier and Weible 2007). Mature policy subsystems include “a set of participants ... who share an expertise in a policy domain and who have sought to influence public policy in that domain for an extended period” and “the agencies, interest groups, and research institutions that have had sub-units specializing in that topic for an extended period”. In the IAD framework, an action arena refers to “the social space where individuals interact, exchange goods and services, solve problems, dominate one another, or fight (among the many things that individuals do in

action arenas)" (Ostrom 2007). Although these definitions focus on slightly different features, they are not complementary. In the following discussion, two systems will be described and compared:

- (1) A generic U.S. National Forest, including the natural and manmade resources located within it, plus the people who depend on, interact with, manage, and study it, as well as external but closely-linked ecosystem components (such as contiguous state or private forests, waterways, and wildlife habitats that span the forest boundary); and
- (2) A generic three-dimensional portion of the U.S. EEZ including the natural and manmade resources located within it, plus the people who depend on, interact with, manage, and study it, as well as nearby or linked ecosystem components that affect it (such as watersheds, coastal waters, migratory species, and large-scale currents).

There is inevitably some arbitrariness in the delineation of any study area. Many scientists and policymakers have struggled to define an appropriate scale for ocean policy analysis and implementation. The U.S. Commission on Ocean Policy (2004) and others (e.g., Hennessey and Juda 2001) have recommended using large marine ecosystems (LMEs) as the unit of study, although they emphasize that some problems

may need to be addressed at larger or smaller scales.¹³ Others (e.g., Cicin-Sain and Knecht 1998) have cautioned that ocean areas should not be considered separately from the watersheds that feed them. However, the scale of LMEs, a concept developed and promoted by ecologists, is not as useful for exploring governance issues¹⁴ and the inclusion of coastal watersheds introduces agencies and communities to the analysis that, while consequential, may not be intimately involved in the EEZ-focused action arena.

Whatever boundaries are selected, policy analysts need to remain conscious of related processes operating at larger and smaller scales. As will become evident in later chapters, the actual dimensions of the systems defined above can range from hundreds to hundreds-of-thousands of square miles and their boundaries are highly porous. Global climate patterns and distant political events affect forests in important ways, just as watershed features and international law influence the U.S. EEZ. Such factors will be considered implicitly and explicitly as part of the broader setting for each action arena.

3.4.2 Setting

Every policy analyst recognizes that the setting in which the policy action takes place, the *system context* or set of *exogenous variables*, is extremely important and includes

¹³ LMEs (Sherman and Alexander 1986) are “regions of ocean space encompassing coastal areas from river basins and estuaries on out to the seaward boundary of continental shelves and the seaward boundary of coastal current systems. They are relatively large regions on the order of 200,000 km² or larger, characterized by distinct bathymetry, hydrography, productivity, and trophically dependent populations.”

¹⁴ As explained by Juda (2001), “the divergence between ‘ecologically defined space’ and ‘politically defined space’ gives rise to a host of management problems ...”

physical (including geological and chemical) conditions, ecological factors, a variety of manmade and natural goods and services, and complex political, economic, and cultural dynamics. Again drawing on the frameworks discussed above, important context variables are summarized here. Note that because broad community attributes are inextricably linked to the characteristics of the individual and group actors in the policy system, there are overlapping elements between this section and the next.

Ecological setting

- main species, habitats, processes
- ecological status, from pristine to degraded
- history of depletion and restoration
- availability of data and level of understanding
- ease of monitoring

Goods and services

- available goods and their characteristics (common pool, public, private, toll)
- nature of property rights (including public trust duties)
- available services and their means of provision and production

Social setting

- cultural history
- community diversity, nature of inequalities, presence of hierarchy
- socio-economic status, employment opportunities

- levels of trust, conflict, connectedness
- nature of discourse/social constructions concerning community members, resources, problems, and solutions
- external interest in the policy subsystem and connections with other policy subsystems
- presence of collaborative drivers (i.e., motivated leadership, interdependence, uncertainty, incentives, “hurting stalemates”)

Governance setting

- authorities (parallel, sequential, nested, fragmented, polycentric)
- types of rules-in-use, formal and informal (see Section 3.2.2 and Figure 3.3)
- monitoring and enforcement provisions
- venues for influence, decisionmaking, and conflict resolution
- access for citizen voice
- accessibility of information
- decisionmaking levels
- prior governance successes or failures
- significance of public trust duties
- institutional support for collaboration

Table 3.1 provides a first look at how these elements might be characterized in the forest and ocean systems defined above and will be used to structure further comparisons. As later chapters delve more deeply into U.S. forest and ocean features, additional details will emerge and the contents of the table will be updated.

3.4.3 Participants and interactions

At the heart of any action situation (a.k.a. policy subsystem, local public economy, or collaborative governance regime) are *participants*: the actors whose decisions and interactions lead to certain outcomes. Each participant occupies one or more *positions* which grant specific kinds of authority, offer different choices for action, and imbue their holders with certain cultural attributes. Some important and frequently occurring positions include elected official, agency professional, journalist, scientist, judge, resource user, interest group leader, citizen, indigenous group member, and policy entrepreneur. Other potentially significant characteristics of participants include their access to information, relative power or vulnerability, and contributions to (or victimization by) broadly disseminated narratives or discourse. Participants may have very different ideas about the costs and benefits, real or perceived, that accrue to them under different outcomes.

Table 3.1: Policy framework elements on land and in the ocean

Differences are highlighted in bold italics. (Note: This comparison is developed further in Table 6.1.)

<p>System to be analyzed</p> <p>Framework element</p>	<p>Public land</p>	<p>Ocean</p>
<p>Scope</p>	<p>A U.S. National Forest, plus closely linked human communities and ecosystem components</p>	<p>An ecosystem-based region of the EEZ (3-200nm from shore), plus closely linked human communities and ecosystem components</p>
<p>Ecological setting</p>	<ul style="list-style-type: none"> • Widely varied ecosystems generally include harvestable trees, related mid-story and ground cover species, and diverse animal assemblages, often including one or more threatened or endangered species. • Migratory species, waterways, and airborne features extend ecosystem beyond forest boundaries. • Some vertical variation, from subsurface resources, through a multi-layered ecosystem, and including airborne species and atmospheric phenomena. • “Natural” ecosystem subject to major shifts due to fire, flooding, geologic events, and disease. • Ecological status ranges from highly impacted to near pristine. Main threats are from overharvesting, habitat modification, invasive species, disease, fire, and climate change. • Monitoring and mapping are extensive and ecological understanding has improved greatly over time. 	<ul style="list-style-type: none"> • Species assemblages extremely variable depending on location, depth, latitude, chemistry, etc. <i>Typically higher mobility and connectivity than on land.</i> Fewer marine endangered species. • Migratory species, ocean currents, and airborne features extend ecosystem beyond defined boundaries. • <i>Extreme vertical variation from the seafloor, through several ocean ecosystem zones, and into the atmosphere.</i> • “Natural” ecosystem subject to major shifts due to storms, geologic events, and disease. • Ecological status ranges from impacted to near pristine. Main threats are from overharvesting, habitat modification, invasive species, and climate change. • <i>Monitoring is patchy at best,</i> with greatest focus on marine mammals and commercially desirable fish species; <i>mapping is limited</i> to coastal areas. Ecological understanding is limited, but growing.

<p style="text-align: center;">Goods and services</p>	<ul style="list-style-type: none"> • Goods: Timber, forage, other natural products, wildlife for recreational hunting, fossil fuels, hard rock minerals. Most goods provided by federal agencies but produced by private parties. • Services: Non-extractive recreation, water and climate services, renewable energy, transportation (resource-related and thruways), wilderness and existence value. Combination of natural and human-created services. • Access to resources is dependent on road construction. 	<ul style="list-style-type: none"> • Goods: Fish and seafood, other natural products, recreational fishing, fossil fuels, minerals and aggregates. Most goods provided by federal agencies but produced by private parties. • Services: Non-extractive recreation, water and climate services, renewable energy, transportation, wilderness and existence value. Combination of natural and human-created services. • <i>Access to resources is highly challenging, but not tied to linear, manmade transportation routes</i>
<p style="text-align: center;">Social setting</p>	<ul style="list-style-type: none"> • Humans can live within and immediately at forest boundaries. • Long history of human habitation and use throughout the area. • Historically small, resource dependent communities have undergone population growth and diversification over time. • Variable and complex discourses concerning forest resources and related communities; conflicting conceptions of problems and solutions. (Discussed further in Ch. 4 & 5.) • Longstanding interest in forest policy among the general public and distant communities. • Incentives for collaboration present due to interdependence of authorities, motivated leaders, scientific and policy uncertainties, plus “hurting stalemates” in many locations. • Uneven access to information and expertise and varied sources of knowledge among participants. 	<ul style="list-style-type: none"> • <i>Humans live at some distance from EEZ and access ocean space only temporarily for work or recreation.</i> • Long history of human uses in coastal zone, extending further offshore in recent decades. • Ocean-dependent coastal populations increasingly displaced by residential and tourism-related communities. • Variable and complex discourses concerning ocean resources and related communities; conflicting conceptions of problems and solutions. (Discussed further in Ch. 7.) • <i>Relatively recent interest in ocean policy among the general public and distant communities.</i> • <i>Infrequency of direct conflicts and agency independence provide little incentive for collaboration.</i> • Uneven access to information and expertise and varied sources of knowledge among participants.

<p style="text-align: center;">Governance setting</p>	<ul style="list-style-type: none"> • Forest Service has primary authority, but other state and federal agencies have jurisdiction over specific activities, issues, or regulatory requirements. Nested and polycentric governance. • Dozens of independent and overlapping laws in operation. • Trust-like duties but no formal PTD. • Explicit multiple-use mandate in law. • Privately owned lands often interspersed with federal lands. • Primary venues for influence include the media, courts, elections and lobbying, administrative proceedings, and occasional collaborative settings. • Management includes technocratic, market-based, and participatory approaches. • Major emphasis on area-wide, multiple-use planning. • Enforcement difficult. 	<ul style="list-style-type: none"> • Sector-specific authorities dispersed among many parallel federal agencies. <i>Complex rights and international authorities from 12-200 nm.</i> New National Ocean Council may promote greater coordination. • Dozens of independent and overlapping laws and conventions in operation. • Trust-like duties but no formal PTD. • <i>No legal mandate to accommodate multiple uses.</i> • <i>No private ownership within the EEZ.</i> • Primary venues for influence include the media, courts, elections and lobbying, administrative proceedings. • Management primarily technocratic and regulatory, with limited market-based approaches. Some authority devolved to Regional Fishery Councils • <i>No area-wide planning in EEZ; 2010 Executive Order calls for multiple use spatial planning.</i> • Enforcement very difficult.
<p style="text-align: center;">Participants</p>	<ul style="list-style-type: none"> • Local, state, and national legislators • State and federal courts • Agency staff • Local and national media • Scientists • Longtime and recent residents, frequently of different socio-economic status • Forestry workers (resident and migratory); recreation-related workers; energy/mineral industry owners and workers 	<ul style="list-style-type: none"> • State and national legislators; <i>selected international bodies</i> • State and federal courts; <i>international adjudication</i> • Agency staff • Local and national media • Scientists • Longtime and recent coastal residents, frequently of different socio-economic status • Fishermen (nearby and distant); charter boat owners; other recreation-related workers; shipping industry owners and workers; energy/mineral industry owners and workers; “new” users (e.g., aquaculture, wind energy)

	<ul style="list-style-type: none"> • Environmental NGOs • Collaborative dynamics historically poor; growing collaborative leadership from agencies and communities, with an emphasis on trust-building, shared discovery, joint deliberation, and multi-agency decisionmaking. 	<ul style="list-style-type: none"> • Environmental NGOs • <i>Collaborative dynamics generally poor</i>. Some fishery councils, coastal communities, and regions have demonstrated elements of engagement and shared motivation.
Coalitions	<p>Advocates for:</p> <ul style="list-style-type: none"> • commercial timber • recreational fishing and hunting • fossil fuel extraction • conservation/sustainable use • wilderness preservation • market mechanisms and states-rights • local and state economic development • traditional native claims • national security/military priorities • <i>fire management/suppression</i> 	<p>Advocates for:</p> <ul style="list-style-type: none"> • commercial fishing • recreational fishing • • fossil fuel extraction • conservation/ sustainable use • no-take marine reserves • small government/"freedom of the seas" (anti-regulation) • coastal economic development • traditional native claims • national security/military priorities • <i>coastal protection from storms, erosion</i>

Sources: U.S. Forest Service Research and Development <http://www.fs.fed.us/research/research-topics/>; Bryner 1998; Tyldesley and Hunt 2003; U.S. Commission on Ocean Policy 2004; Gopnik 2008.

Although participants are often conceptualized as individuals, they can also be formal or informal organizations, including the dominant and minority advocacy coalitions proposed by the ACF. Enduring ACF-style coalitions are linked by a shared set of beliefs and access to certain resources, although temporary coalitions can be formed based on mutually-desired outcomes, even if motivated by very different beliefs.

When some form of multi-party, multi-agency, or multi-level collaboration is desired or necessary—the norm in the complex settings being explored here—the participants’ collaborative dynamics (the “gears in the machine” in Figure 3.5) become

important. According to Emerson et al (2012), certain conditions have been found to accelerate the collaborative process. *Principled engagement* is propelled by (1) shared discovery of interests, concerns, and information; (2) agreement on objectives and expectations; (3) joint deliberation, relying on reasoned communication and “the exercise of meaningful voice” by all parties; and (4) group determinations about process and substance. The next gear, *shared motivation* (sometimes referred to as social capital) is boosted by (1) building trust; (2) generating understanding and respect for differences; (3) establishing the legitimacy of the process, through transparency and demonstrations of credibility; and (4) fostering group commitment to an ongoing process over time. Finally, the participants’ *capacity for joint action* is increased when there are (1) institutional arrangements to manage repeated interactions over time; (2) leadership that supports collaboration; (3) a knowledge base that is jointly derived and accepted; and (4) resources such as funding, time, technical support, expertise, and power that are distributed among participants to ease transaction costs. A broad-brush description of participants, coalitions, and collaborative drivers in the National Forest and ocean settings is also provided in Table 3.1.

3.5 Variations over time

One critical feature of the policy elements and interactions discussed above is their variation over time. Some are thought to change very slowly as a result of changes in the surrounding political and social climate (e.g., the ACF category of deep core

beliefs), some can change due to deliberate collective action by participants (e.g., the rules in use within the IAD framework), while other features may adjust rapidly and continuously (e.g., coalition resources). Considering how and why important policy elements, interactions, and outcomes change over time is central to policy analysis.

In addition to the models of change embedded in the frameworks discussed above, other scholars have advanced important ideas about policy change. One commonly discussed issue is the concept of “path dependence,” a term coined by David (1985). Its subsequent development and use—verging on overuse— is analyzed in Pierson (2000). In its simplest form, path dependence merely reminds us that “history matters:” previous choices and events affect those that come later. A more important form of path dependence occurs when yesterday’s choices result in structures or institutions that are both difficult to change and that limit later choices in ways that are inefficient or undesirable (Liebowitz and Margolis 1995). Although the concept of path dependency was originally developed to explain market inefficiencies, it has also been employed by historians and political scientists to understand seemingly perplexing, but persistent, patterns (e.g., Page 2006, Torfing 2009).

Another analysis of policy change over time resulted in the Multiple Streams Framework, developed by Kingdon (1984), applied and extended by others (e.g., Zahariadis and Allen 1995), and summarized in Sabatier (2007). In brief, proponents of the Multiple Streams Framework posit that significant policy change occurs when three

events coincide (the “merging streams”): a particular problem, through new data or framing, becomes salient; a feasible solution is available; and policymakers are paying attention. These presumably infrequent conditions are thought to create a “window of opportunity” that can then be exploited by savvy “policy entrepreneurs” with an interest in addressing that problem. Although Multiple Streams appears to explain certain policy patterns, at least ex post facto, many critics (see Schlager 2007, Sabatier 2007b) consider it incomplete.

Another effort to analyze policy change over time led to the application of punctuated equilibrium theory to public policy, first proposed by Baumgartner and Jones (1993) and updated and summarized by True, Jones, and Baumgartner (2007). Observations of U.S. policy, particularly the budgeting process, led these researchers to conclude that policy change is generally slow and incremental, punctuated with brief periods of major change that are precipitated by the actions of a few influential individuals, combined with broad group mobilization. The process is not unlike the importance of both steady stream flow and sudden flooding to overall land erosion.

Although the theories of change discussed in this section are not explicitly applied in the analyses of forest and ocean policies presented in later chapters, the factors identified as potentially important—such as major shifts in elected, appointed, or self-selected leaders (e.g., the New Deal), the evolution of popular culture (e.g., the growth of the environmental movement), and significant bio-physical events (e.g., the

1930s Dust Bowl)—are noted and related to both concurrent and subsequent policy developments.

3.6 Summary

In this chapter, I reviewed several well-developed frameworks for policy analysis in order to devise a theoretically-grounded approach for comparing the governance and management of public lands and the EEZ. Using this approach, I present a preliminary analysis of the ecological, social, and governance settings, goods and services provided, and participants and coalitions engaged in each location, concluding that the similarities are sufficient to pursue this comparison further.

The next step, undertaken in Chapters 4 and 5, is to delve more deeply into the history of the U.S. National Forest system, exploring changes in its social, ecological, and governance characteristics over the last 100-150 years and examining how they influenced policy outcomes. Parallels with ocean governance history are noted, and successful models sought that might be translated to the ocean context.

Part II: Lessons from Forest Management

4. Creation and Development of the U.S. National Forest System

Part I showed how the U.S. EEZ and National Forests can be legitimately compared based on similarities in many of their fundamental, policy-relevant features. Part II now turns to the National Forests to understand their history and explore positive and negative experiences that might be instructive for ocean managers, i.e., Research Question #2. This chapter relies primarily on government documents and the scholarly literature to identify recurring themes. Chapter 5 then presents a more fine-grained picture, based on three National Forest case studies conducted in two different regions of the country.

Ocean policy experts—and all those interested in sound ocean management—should read this section closely. Although the subject matter will be new to most, and the relevance may not at first be apparent, many unanticipated parallels and surprisingly familiar scenarios emerge.

4.1 Overview

As described briefly in Chapter 2, the National Forests and their administrative home in the U.S. Forest Service were built up over many decades and are now enshrined in a number of laws and firmly lodged within the federal bureaucracy. But what *are* National Forests? How and why did they come about? What value (and values) do they

embody? How have they been used and managed and what challenges has that posed for government agencies and the public? Like most organizations, the story of the Forest Service has been told by many different people over time, with different memories and perspectives, relying on different records. This chapter presents a condensed account of some of the major themes and events in Forest Service history, in roughly chronological order.

Hundreds of scholars have spent distinguished careers studying and theorizing about National Forest management; their analyses and writings are heavily referenced below. My purpose is not to reinvent that body of work but rather, through the eyes of a marine policy specialist, to see what themes emerge that might be relevant to the management of another valuable public space: the ocean.

4.2 The shift from “disposal” to “reservation” of public lands

Chapter 2 described the late 19th century shift from an era of rapid *disposal* of U.S. government-controlled lands, through grants and sales to other entities, to an era of *reservation* of those lands, i.e., maintaining them under federal ownership for specified national purposes.¹ That shift established what we now think of as the public lands and created a role for the federal government in managing land for the benefit of the nation as a whole, rather than transferring land to private owners. The concept of government-

¹ The terms “disposal” and “reservation,” as defined in the text, are widely used in the public lands literature. To make matters more complicated, what are commonly referred to as “reservations,” i.e., lands owned by Indian tribes, actually constitute one form of federal land *disposal*.

Table 3.2: Timeline of major laws and regulations affecting National Forests

Date	Event
1891	Forest Reserve Act declares that certain forested GLO lands can no longer be sold or given away
1897	Organic Act clarifies that the Forest Reserves are intended to protect forests, supply timber, and maintain watershed functions
1905	Forest Service created and moved to USDA
1911	Weeks Act authorizes Forest Service purchases of degraded Eastern forest lands
1916	Wildlife Refuges created on Forest Service lands
1922	General Exchange Act allows National Forest managers to exchange lands with other landowners to consolidate holdings
1924	Clark-McNary Act encourages and facilitates purchases of additional Eastern forest lands
1960	Multiple Use Sustained Yield Act (MUSY) tells Forest Service to manage for timber, water supply, wildlife, grazing, and recreation; authority over mining and oil & gas remains in the Dept. of the Interior
1964	Wilderness Act creates 9 million acres of fully protected Forest Service lands and sets a process for further designations
1966	Freedom of Information Act allows greater public access to agency records
1969	National Environmental Policy Act requires environmental impact analyses for federal actions
1969	Endangered Species Act grants heightened protection for listed species
1970	Binding regulatory provisions added to the 1963 Clean Air Act requires additional impact analyses
1972	Federal Advisory Committee Act
1972	Clean Water Act
1974	Forest and Rangelands Renewable Resources Planning Act (RPA) calls for periodic resource assessments on federal lands
1976	National Forest Management Act (NFMA) instructs Forest Service to create a plan for every forest that achieves balanced, multiple-use (as called for in the MUSY Act), with revisions every 15 years
1982	NFMA planning regulations issued. These regulations have governed forest plans for 30 years as all subsequent proposed revisions were challenged and withdrawn or rejected by courts
2012	Revised NFMA planning rule issued and immediately challenged in court

run forests, in particular, was enshrined in the 1891 Forest Reserve Act and further clarified in an 1897 Organic Act (see timeline in Table 3.2) stating that Forest Reserve managers were to “regulate occupancy and use and preserve the forests thereon from destruction.” In 1905, the Division of Forestry, previously in the Department of Interior, was renamed the Forest Service and moved to the Department of Agriculture where other “crops” were managed.

This transition took place against the backdrop of several competing philosophical, economic, and administrative perspectives. Late nineteenth century politics in the U.S. were dominated by a small number of wealthy capitalists promoting an aggressive free-market approach toward natural resources, supported by a utilitarian philosophy that sought to maximize economic gains (Culhane 1981). By the end of that century, the widespread and visible degradation of forests, rangelands, farmland, and wildlife—not to mention the economic and political stranglehold of the few over the many—created strong public support for a new President, Theodore Roosevelt, and a new approach referred to as *progressive conservationism* (Pinchot 1947).

The conservationists (with President Roosevelt and his friend Gifford Pinchot in the lead) believed that some portion of the land and resources should be kept under government ownership, to be managed in the interests of the public. Furthermore, they thought this could be admirably accomplished by professional staff within government agencies, relying on rational, scientific techniques. Based on this philosophical

orientation, and his training under French and Prussian foresters, Pinchot proposed that National Forests could be efficiently managed as well-run “tree farms” that would produce large yields indefinitely (Kennedy et al 1998).²

Around the same time, a competing perspective, *preservationism*, was being advanced by well-known thinkers and writers who viewed undisturbed nature as valuable in its own right, rather than as a source of goods for people (Meyer 1997). They sought to preserve areas that appeared untouched by civilization, believing that “in God's wildness lies the hope of the world - the great fresh, unblighted, unredeemed wilderness” (John Muir, *Alaskan Journal*, 1890).³

These three competing worldviews—free enterprise, progressive conservation, and preservation—continued to jostle for dominance in American attitudes toward natural resources over the next hundred years and up to this day (Culhane 1981; Bryner 1998).

4.3 Trees as a crop

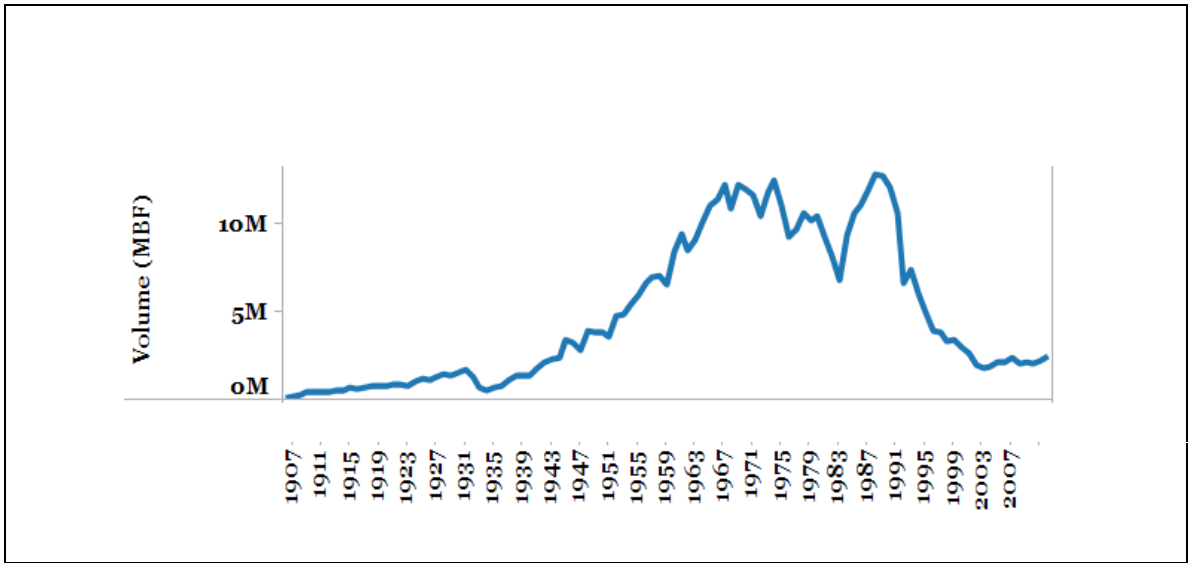
The early days of the Forest Service, with Pinchot as Chief Forester, epitomized the ascendance of progressive conservation. In an era when notions of efficiency,

² As early as 1804, the head of the Prussian Forest Administration had told foresters to “utilize [forests] to the greatest possible extent, but still in a way that future generations will have at least as much benefit as the living generation,” an early statement of what might now be called sustainable development (quoted in Kennedy et al 1998).

³ This romantic notion of untouched wilderness ignored the fact that virtually all U.S. government lands had previously been occupied and used for centuries by Native Americans and, in some areas, Spanish descendants and Mexicans (Bryner 1998, Kosek 2006).

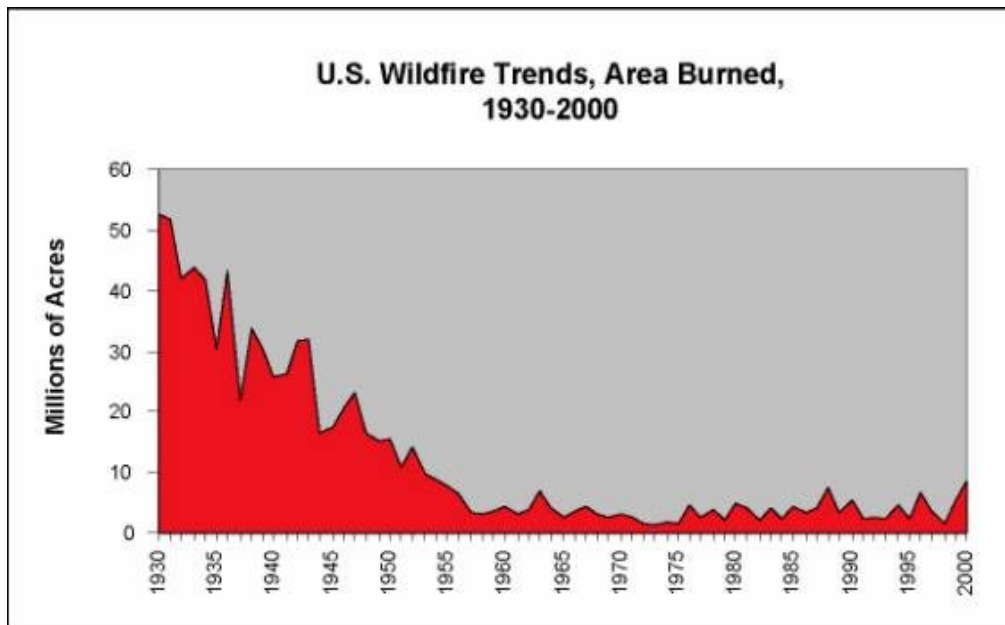
professionalism, and science were greatly valued, Pinchot made it his priority to advance the field of professional silviculture in America. He helped create (and fund) the Yale School of Forestry and founded the Society of American Foresters. He believed that the forests should be overseen by government, but harvested by private interests according to specific guidelines in exchange for fees. In this, he was opposed by both the timber companies, who resented perceived government interference with their business (Balogh 2002), and by preservationists like John Muir, who were opposed to the commodification of nature. Muir (1917, p. 34) referred to the forests as “lordly monarchs proclaiming the gospel of beauty like apostles.”

Through the 1930s, timber harvest levels on federal lands were relatively low (Figure 4.1) and the role of the Forest Service was considered largely custodial. One of its main tasks was to control wildfires, which burned from 20 – 50 million acres annually in 1930 (see Figure 4.2). These fires often originated on private lands, but the damage to public forests led the Forest Service to devote significant resources to their prevention, detection, and rapid suppression. In his 1933 book, *The Forest Ranger*, Marshall depicted a larger than life, heroic figure and exhorted the U.S. government to initiate a major program of purchasing private forest lands and converting them all to the “excellent” stewardship of the Forest Service. The purchase of private forest lands in Eastern states, initiated in 1911 under the Weeks Act, accelerated in 1924 with passage of the Clark-McNary Act.



Source: USFS 2012

Figure 4.1: Timber harvest on National Forests, 1905-2011



Source: U.S. Wildfire Statistics 2001, USDA, Forest Service

Figure 4.2: Area burned by wildfire (1930–2000)

Through the early 20th century, private forest owners had been rapidly cutting their own lands to satisfy national needs for timber. Beginning around the time of World War II, and accelerating in the 1950s and '60s as post-war housing construction boomed, the timber industry increasingly looked to National Forests as an additional source of wood products. The Forest Service obliged by steadily increasing the allowable cut (see Figure 4.1, above). Their faith in technocratic management, incomplete ecological understanding, and persistent view of trees as agricultural crops that could be actively managed, combined to convince Forest Service staff that these harvest levels could be sustained, and even increased, if they were accompanied by systematic replanting. By clearcutting entire stands, and replanting them with denser monocultures, foresters believed they were executing efficient, science-based, modern management. As late as 1947, Pinchot continued to proclaim that "forestry is tree farming" (Pinchot 1947, p.105). This perspective was reinforced by pressure from industry groups and a strong message from Congress, through hearings and appropriations, that a critical Forest Service job was to help boost local and national economies through timber sales.

In some ways, the 1950s may have been a high point for the Forest Service image, internally and externally. A 1952 article in *Newsweek* magazine stated that "in 47 years, the foresters have been untouched by scandal" and a book written in the late 1950s (Kaufman, 1960) concluded that the Forest Service could be considered a model of "an efficient and effective government agency." But by the 1960s, like a hangover after a

drinking binge, the consequences of the escalating harvest were beginning to be felt.

Twice as much timber was cut between 1950 and 1966 as during the previous 45 years of Forest Service existence. Meanwhile, the mood of the country was beginning to shift and the forces of opposition were getting organized.

In 1969, a Forest Service study of Douglas fir in the Pacific Northwest concluded that existing harvest levels could not be sustained (USFS 1969). In response, rather than *decreasing* allowable timber sales, Congress instructed the Forest Service to intensify its active forest management efforts to increase future yields—in other words, continue high levels of cutting, dense re-planting, and heavy use of herbicides and pesticides (Fedkiw 1999). The timber harvest on National Forests rose by another 92 percent from 1952 through 1986, before plummeting by 84 percent through 2001 as the debates and conflicts described in the sections below developed (Smith et al 2004).

Currently, about one-third of the United States' land area, 755 million acres, is forested. Of that, 56 percent is privately owned and the rest is controlled by federal, state, county, or municipal agencies. The Forest Service manages 193 million acres (60 percent of public forest lands and 8.5 percent of the total U.S. land area), divided into 155 National Forests⁴ located in 44 states (Figure 4.3), which range in size from the diminutive Calaveras Big Tree National Forest in California at only 379 acres, to the massive Tongass National Forest in Alaska at 17 million acres. The great majority of national

⁴ The Forest Service is also responsible for 20 national grasslands.

Forests are located in the Western states. Despite this large area under federal ownership, privately-owned forests currently provide 92 percent of the nation's timber harvest, with National Forests contributing only 2 percent (USFS 2008; Smith et al 2004).

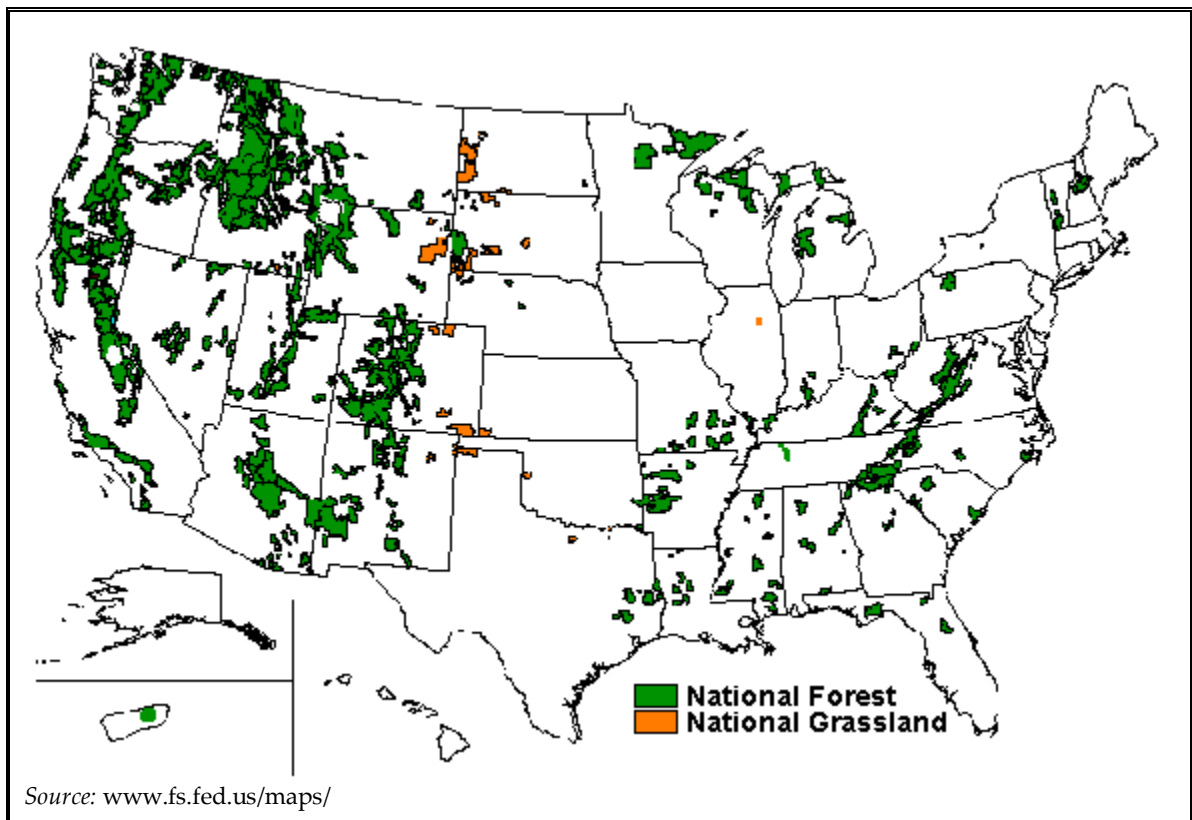


Figure 4.3: Distribution of National Forests

4.4 Navigating a multiple-use mandate

In addition to the original purposes of timber harvesting and waterway maintenance, other uses of Forest Service lands emerged and grew over time.⁵ From the initial establishment of forest reserves, homesteaders and settlers were permitted to extract timber, stone, fodder, and wildlife from the National Forests for domestic use, free of charge. In 1905, when the forest reserves were transferred to the Dept. of Agriculture, livestock grazing was stipulated as an additional acceptable use. A law in 1915 specifically authorized the construction of summer homes and related recreation on National Forests. Then, in 1916, wildlife refuges were established on Forest Service lands, and fishing and hunting were recognized as allowable uses. Thus, by 1916 the Forest Service was already responsible for managing “the five Ws” (Hall ’63): wood, water, wildlife, range, and recreation.

As early as 1907, Pinchot had recognized that National Forest uses might “sometimes conflict a little” but had to “fit with one another so that the machine would run smoothly as a whole” (Pinchot 1907 “The Use of the National Forests,” as quoted in Fedkiw 1999). As the Forest Service grew, institutionalized its operating procedures, and developed an organizational culture, it sought ways to fulfill its sometimes

⁵ From the start, the 1897 Organic Act for the forest reserves allowed prospecting and mining to continue in these areas under the very permissive General Mining Law of 1872 administered by the Department of the Interior and in effect to this day (Fedkiw, 1998). Although this use doesn’t occupy large areas of the forest, it can be very damaging locally. One Forest Service scholar referred to the anomaly of leaving mining out of the broader multiple-use structure as “a bad idea that has been amazingly persistent” (Davis 2001).

contradictory responsibilities to balance all the allowed uses. The term “multiple-use” is found in Forest Service speeches and documents starting in around 1933 and was increasingly incorporated into Forest Service practice and guidance from that time forward (see Table 4.1; Fedkiw 1999).

In 1936, an article written for the farming community explained the value of intercropping, exemplified by the ancient Native American practice of joint cultivation of beans and corn for succotash, but its author asserted that “the best illustration of this is the National Forests.” This resonated with Forest Service thinking at the time, and the article was widely circulated among Forest Service staff. The idea that multiple uses could not only co-exist but would actually enhance each other came to be accepted as the justification for multiple-use management. The 1963 Forest Service Manual continued to maintain that “compromise and limitations are acceptable because of the greater total benefit,” an unverified assumption that some critics referred to as the “Succotash Syndrome” (Behan 1967).

For the next several decades, uses continued to increase and forest managers took a proactive role in facilitating and encouraging them. The previous section described early technocratically-driven forestry practices. This approach was repeated in efforts to build up herds of desirable, big game animals for hunters, such as deliberate predator control and selective forest thinning. To compete with the expanding National Park system, recreation was enthusiastically promoted in the forests, including

Table 4.1: Evolution of multiple-use management and planning in National Forests

Date	Event
1897	Organic Act for forest reserves clarifies that they are intended to protect the forests, supply timber, and maintain watershed functions
1905	Transfer Act creates the Forest Service and moves it to USDA; grazing is specified as an allowable use in a letter from the Secretary of Agriculture
1915	Term Lease Law allows summer homes on forests; beginning of recreational uses
1916	Wildlife Refuges created on Forest Service lands; five major Forest Service goals—wood, water, wildlife, range, and recreation—now enshrined in law
1934	Montana’s Regional Forester writes an article explaining that Forest Service practice is to manage multiple uses in one place, as a farmer would
1958	Forest Service manual adds a new section on multiple-use management
1960	Multiple Use Sustained Yield Act (MUSY) confirms previous practice, instructing Forest Service to manage for wood, watershed, wildlife, range, and recreation, but does not give them authority over mining or oil & gas. Bill does not mention wilderness as a use
1974	Resources Planning Act (RPA) requires National Forest assessments for each region
1976	National Forest Management Act (NFMA) expands on RPA. Instructs Forest Service to create a plan for each forest that achieves balanced, multiple-use for the five MUSY goals, plus wilderness. Calls for plans to be revised no later than every 15 years.
1979	First NFMA regulations issued
1982	Revised NFMA regulations issued. These rules still govern forest plans because all subsequent versions were withdrawn, revised, and/or blocked in court
1983	First forest plans completed
1990	Forest Service releases the “Critique of Land Management Planning” (USFS 1990)
1995	Last forest plan completed; early plans being revised
1999	USDA Committee of Scientists releases report on Forest Service planning, “Sustaining the People’s Lands”(Johnson et al 1999)
2012	Revised NFMA planning rule issued after extensive public consultation and immediately challenged in court

construction of facilities to support camping, automobile touring, hiking, river rafting, and skiing.⁶ Post war affluence and mobility sent Americans flocking to the public lands. Annual visits to National Forests went from 5 million in 1920 to 18 million in 1946 and 93 million in 1960 (MacCleery 1992). Even adjusting for population growth, this means that in 1920 there was an average of one forest visit/year for every 21 U.S. residents while forty years later that annual rate had increased tenfold, to one forest visit for every 2 residents.⁷

In 1960, the Forest Service's 1897 Organic Act was finally updated to formalize the allowable uses in National Forests and describe how they should be managed. The Multiple Use-Sustained Yield Act (MUSY) reaffirmed that the National Forests exist "for outdoor recreation, range, timber, watershed, and wildlife and fish purposes" and gave the Forest Service authority to "administer the renewable surface resources of the National Forests for multiple-use and sustained yield of the several products and services obtained therefrom." Many other land uses were accepted, and continue to occur, on Forest Service land. In addition to the hardrock mining mentioned above, rights of way for pipelines, power lines, public roads, and hydropower installations—mostly managed by other agencies—are allowed in National Forests under "general occupancy and use" regulations associated with provisions of the forest reserves

⁶ Fifty-four percent of downhill ski lift capacity in the U.S. is actually located on National Forest land, operated under special use permits from the Forest Service (Wilkinson 1987).

⁷ Of course forest visits are not distributed evenly over the population or the country.

Organic Act of 1897 that were not overridden by the 1960 MUSY Act. In addition, the extensive construction of logging roads, although not treated as a separate “use,” caused serious problems for other users and became a major source of contention.

The Forest Service had lobbied in favor of MUSY and considered its passage a significant accomplishment, since it essentially codified what they had been doing for the past four decades. Significantly, Congress did not establish any priorities among the allowed uses, nor did it specify how the Forest Service was intended to make such choices.

As defined in MUSY, “multiple-use” means: “The management of all the various renewable surface resources of the National Forests so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some land will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output.”

Its companion term, “sustained yield,” was defined as “the achievement and maintenance in perpetuity of a high-level annual or periodic output of the

various renewable resources of the National Forests without impairment of the productivity of the land." A careful reading of these definitions makes it clear that MUSY creates a very difficult balancing act for the agency, allowing a high level of agency judgment and discretion. In effect, the Forest Service's job had become to define "the needs of the American people" and "the most judicious use of the land" (Reich 1962, Behan 1967).

The gradual adoption, and eventual codification, of multiple-use as the guiding principle for management of the National Forests represents a victory for the progressive conservationists' conviction that science-based, apolitical, federal agencies would be in the best position to make decisions that achieve "the greatest good for the greatest number of people over the long run." It was also a victory for agency leaders who wished to preserve administrative flexibility and control over "their" lands (Hall 1963). MUSY still governs Forest Service lands, although the mix of uses and the interpretation of "balance" have drastically changed in many forests.

4.5 Making room for wilderness

As mentioned previously, the expansion of timber harvesting and other National Forest uses was continually challenged by advocates of the preservationist perspective, rooted in the writings of philosophers and writers such as Ralph Waldo Emerson, Henry David Thoreau, John Muir, Bob Marshall, and Aldo Leopold, who saw wilderness as a place of spiritual sustenance and "the essential fabric of a distinctive American culture"

(Scott, 2001).⁸ Although the concept of “wilderness” is itself a human creation — virtually all of the U.S. land area has been inhabited or in some way used by human communities for hundreds if not thousands of years — the desire to identify and set aside “unspoiled” areas has endured and expanded over the last century.

One response to this yearning to preserve natural landscapes was the creation of the National Park System, starting in the late 1800s and expanding through the 1930s. Although largely protected from extractive uses, the parks were intended to promote recreation. The Park Service encouraged and accommodated visitors by building roads, lodges, campsites, and trails, all of which necessarily impinged on natural areas. As a result, advocates for preservation looked to the Forest Service to set aside some of its lands as true wilderness areas, asserting this as a legitimate “highest use” under multiple-use principles. In 1924, the Gila Wilderness Area in New Mexico became the first so-designated, created at the urging of Aldo Leopold who served as a Forest Service ranger there. Additional National Forest wilderness designations moved forward in 1929, when Regulation L-20 established a formal process for the Forest Service Chief to designate “primitive areas” within National Forests that would “maintain primitive conditions of transportation, subsistence, habitation, and environment *to the fullest degree compatible with their highest public use* with a view to conserving the values of such areas

⁸ These thinkers were also wealthy, privileged, white men of European descent whose less well-known writings reveal disturbing currents of racism. Their love of “untrammelled” nature was linked to a notion of the white man’s destiny in the New World and a willing blindness to the thousands of long-standing inhabitants who had been displaced or forcibly removed from much of that land. (Kosek 2006, Bryner 1998)

for ... public education and recreation" (emphasis added; Wilkinson and Anderson 1987). Seventy-five such areas totaling 14.2 million acres were designated over the following ten years. However, as the regulation made clear, these primitive areas were still considered available for other uses. Debates took place within the wilderness community in the 1930s about which approach was preferable: primitive areas designated by the Forest Service, which offered greater wilderness protection at the moment, but no long term security, or National Parks, which would be more permanent because of Congressional designation, but open to a range of recreational activities (Scott 2001, Harvey 2005).

In the late 1930s, two new National Parks (Olympic and Kings Canyon) were created out of former Forest Service lands. Perhaps in reaction, the head of the Forest Service Recreation and Lands division, Bob Marshall, another wealthy, influential wilderness advocate and founder of The Wilderness Society, pushed hard for more stringent protection of selected areas within the forests. The so-called U-regulations, issued in 1939 (36 CFR Sec. 251.20 1939) stated that new "wilderness areas" as opposed to the "primitive areas" formerly created by Reg. L-20, would exclude all new roads, motorized transportation, commercial timber harvest, and special uses such as resorts and related facilities. Such areas would be selected by the Secretary of Agriculture (rather than the Forest Service chief) and existing "primitive areas" would be evaluated for possible re-classification as wilderness.

Despite the growing designation of wilderness areas, the drive for permanent preservation of “natural” spaces remained strong. In 1945, The Wilderness Society (now endowed through a substantial bequest from Marshall’s estate) hired a new director, Howard Zahniser, to draft and build grass-roots support for federal wilderness legislation, working with other like-minded groups. A January 1956 Sierra Club Bulletin proclaimed that “[wilderness areas] are great reservoirs of the serene order of nature, where things work the way they ought to” (quoted in Scott 2001, p. 30). The first attempt to pass a Wilderness Bill in Congress was met with strong opposition from commercial timber interests, the leadership of the National Park Service and Forest Service, many members of relevant House Committees, and the Eisenhower Administration. Although MUSY had specified that “the establishment and maintenance of areas of wilderness” was allowed within National Forests—and by 1963, 14.5 million acres of Primitive and Wilderness Areas had been carved out under the L and U regulations—a permanent, statutory approach remained the preservationists’ goal. After several more attempts, setbacks, and compromises, President Johnson signed the Wilderness Act into law in 1964, shortly after taking office.

The Act defines wilderness as “an area of undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation and which generally appears to have been affected primarily by the forces of nature, with the imprint of man’s work substantially unnoticeable” and, more poetically,

“an area where the earth and its community of life are untrammelled by man.” Areas designated as wilderness were exempt from the multiple-use paradigm, governed instead by the preservationist belief in the inherent value of nature with no human presence.⁹ The new Act immediately brought 9.1 million acres of administratively-designated Forest Service wilderness areas into the new National Wilderness Preservation System, despite the fact that some of those areas were far from “primeval,” and set up a ten-year process for all public land agencies (including the Forest Service, Bureau of Land Management, Fish and Wildlife Service, and National Park Service) to review areas under their jurisdiction and make recommendations for further wilderness. The Forest Service’s Roadless Area Review and Evaluation (RARE) and its successor, RARE-II, examined 62 million acres of forest land, recommending 15 million of them as wilderness.

Early drafts of the Wilderness bill had proposed that such Agency recommendations be adopted unless vetoed by Congress. But, in an ironic twist of history, *opponents* of the Act insisted instead on a provision specifying that only Congress could designate additional wilderness (Scott, 2001). Although considered a bitter pill to swallow at the time, this later proved a blessing to wilderness advocates, who found it easier to exert direct political pressure on Congress than to alter the deeply

⁹ At that time, arguments for wilderness did not include the value of ecosystem services and the benefits of system resilience to *humans*, as they would later on.

ingrained multiple-use mindset and slow pace of the agencies. Scholars have also noted that this approach allowed Congress to interpret its own law much more loosely than the courts may have permitted the agencies to do (Kelson 1998).

Subsequently, Congress included many areas in the system that fell far short of the statutory definition of wilderness, in order to allow for their recovery and regeneration. In lobbying for designation of one wilderness area in California, proponents admitted that this was “the logical means of precluding timber-harvest activities in the watershed” (MacCleery, 2001). Such skirting of the law was particularly common in Eastern forests, most of which had been acquired by the government only after they had been heavily harvested.

The Wilderness Act was one of the first pieces of environmental legislation to include extensive public participation requirements. As a result, the process of agency wilderness review, which took place from 1964-1974—a tumultuous time at the height of the pro-environment, anti-administration activist movements—was closely scrutinized and became highly politicized. In 1968, “hundreds of grass roots citizen leaders ... travelled to Washington ... to lobby their congressional delegations and to testify for their own wilderness proposals” (Scott 2001).

After passage of the National Environmental Policy Act (NEPA) in 1969, environmental groups maintained, and the courts agreed, that an environmental impact statement (EIS) would henceforth be required for any proposed activity in a listed

roadless area within a National Forest, whether the area had been formally designated as wilderness or not. Recognizing the delays such assessments would create, the timber industry and other forest users instead agreed to support dozens of state-by-state wilderness designation bills. Although these bills included even more wilderness area than recommended by RARE-II, they simultaneously exempted the remaining roadless areas in those states from NEPA's EIS requirements. Between 1978 and 1998, twenty-four wilderness designation bills were passed by Congress.¹⁰ In some instances, legislators were obliged to create whole new categories of protected public lands (such as National Preserves, Conservation Areas, Scenic Areas, and others) when they wished to remove areas from multiple-use but could not plausibly assert that they satisfied the statutory definition of wilderness (Kelson 1998).

As of 2012, 30 percent of the National Forests are maintained as Roadless Areas and 19% (37 million acres) are part of the National Wilderness Preservation System. Another 73 million acres of wilderness are located on lands under Bureau of Land Management, Fish and Wildlife Service, and National Park Service management.¹¹ Of the entire land area of the United States, about 5 percent is now protected as wilderness, much of it in Alaska.

¹⁰ In 1980, the Alaska National Interest Lands Conservation Act added over 56 million acres of wilderness to the Wilderness System, by far the single largest addition. A study of the special circumstances surrounding Alaskan public land management and wilderness could fill several books ... and does. Those issues will not be explored here.

¹¹ Data compiled from individual agency statistics, available at www.wilderness.net, managed by the University of Montana and partner federal agencies. Accessed 3/20/2012.

4.6 The role of forest planning

Although the first formal regulations requiring a plan for every National Forest were not issued until 1979 (see Table 4.1), the notion of nationwide and unit-specific planning was not new.¹² The Forest Service had a long history of conducting resource assessments and drafting work plans with varying levels of detail (Coggins and Evans, 1981), but it was MUSY in 1960 that first “created the impetus for multiple-use planning” (MacCleery 2008).

To fulfill MUSY requirements—and to address a series of court losses related to MUSY implementation—the Forest Service developed an agency-wide planning process in the 1960s and early '70s whereby broad multiple-use objectives were established by the Chief in DC, further elaborated in Regional guides, used by Forest Supervisors and their staff in preparing forest plans, and implemented by requiring projects and actions at the district level to be “consistent” with those plans. A case study from that time (Martin 1969) concluded that, “through the preparation of plans ... multiple-use can become a decisional rule for the future.”

However, despite some improved coordination among uses, MUSY did not lead to a consistent, integrated, nationwide planning system, nor did it constrain Forest Service discretion at the project level in a way that could shift the balance of uses away from its historic emphasis on timber harvesting. For example, in 1970 the Bolle

¹² Detailed reviews of the history of planning in National Forests can be found in Coggins and Evans (1982) and Wilkinson (1987).

Committee, an independent panel named after its chair and Dean of the School of Forestry at the University of Montana, evaluated the status of the Bitterroot National Forest and concluded that “multiple-use management, in fact, does not exist as the governing principle on the Bitterroot [...] Consideration of recreation, watershed, wildlife, and grazing appear as afterthoughts” (Bolle et al 1970).

In an attempt to give non-timber uses more even-handed consideration, Congress passed the 1974 Forest and Rangelands Renewable Resources Planning Act (RPA), which required the Forest Service to periodically assess the long-term supply and demand for all renewable resources and to plan accordingly, but this bill failed to significantly change Forest Service practice. Two years later, under growing pressure from environmental advocates and a game-changing Court order that declared clearcutting to be inconsistent with the 1897 Organic Act, Congress passed the National Forest Management Act (NFMA). As evidence of the sense of urgency behind this bill, it was introduced, debated, and passed within three months. Upon its passage, Sen. Hubert Humphrey declared: “The days have ended when the forest may be viewed only as trees and trees viewed only as timber. The soil and water, the grasses and the shrubs, the fish and the wildlife, and the beauty that is the forest must become integral parts of resource managers’ thinking and actions” (1976 Congressional record, cited in Wilkinson 1997).

NFMA provided extensive guidelines for long-term management of National Forests, requiring planning to be conducted by interdisciplinary teams, including an “integrated plan for each National Forest,” and calling for increased participation by the public and the external science community (Applegate 1977; Fedkiw 1999). Moreover, NFMA specified for the first time that, once a forest plan is in place, subsequent management actions must be consistent with its elements. Although NFMA’s supporters hoped that the process would “help to resolve the differences between environmentalists and timber, mining and livestock-grazing communities” (MacCleery 2001), and others thought planning could insulate forest managers from criticism by “reducing political pressures ... and providing a consistent rationale for on-the-ground decisions” (Coggins and Evans 1981), subsequent events dashed such optimism.

As with most legislation, the first step for the Forest Service in implementing NFMA was to issue suitable regulations. However NFMA set out extremely detailed elements that had to be included, considered at the time to be “some of the most specific forest management requirements ever enacted into law” (Applegate 1977). The regulations would have to include guidelines pertaining to dozens of details about precisely how, when, and where to cut timber, how to achieve diverse plant and animal communities, and how to include the public. Although the first set of regulations was issued in 1979, the 1982 revision has governed forest planning for the last thirty years, during which time all subsequent revisions have been withdrawn, revised, and/or

blocked in court. On March 23, 2012, the Forest Service at last issued a revised planning rule, finalized after more than two years of public consultation and comment. The rule was immediately criticized by environmental groups and, shortly after, challenged in court by a coalition of industry groups.¹³

Integrated multiple-use planning did not turn out to be the panacea for which some had hoped. It became increasingly clear that there were no “optimal solutions,” just different ways of balancing competing interests (Yaffee and Wondolleck 2003). An in-depth review of the first decade of planning recognized both its promise—“planning is the gateway to meeting both the spirit and intent of the many laws governing natural resources”—and its limitations—“some of the problems we want planning to solve are intractable” (USFS 1990). That same review defined the essential elements of planning as: determining resource capabilities, indentifying current and future demands, finding the best match between capabilities and demands, and educating everyone involved. It then concluded that people inside and outside the Forest Service had unreasonable expectations about how easily those tasks could be achieved.

The impact of planning on conditions in the forests has also been uneven. In some forests, plans were written, implemented on the ground, and revised with relatively little conflict (see the Eastern Forest case study in Chapter 4). In others,

¹³ For details, see http://www.biologicaldiversity.org/news/press_releases/2012/national-forests-03-23-2012.html and <http://ens-newswire.com/2012/09/11/enviros-fight-industry-lawsuit-over-u-s-forest-planning-rule/>, both accessed 9/12/2012.

lawsuits under the National Environmental Policy Act, Endangered Species Act, Clean Air Act, Federal Advisory Committee Act, or Clean Water Act dominated the debate, overwhelming any focus on the forest plan. And in the Pacific Northwest, site of the infamous owls vs. jobs debates, planning was taken to a whole new level, including active involvement by the President of the United States, as described in the first case study in Chapter 4.

One interesting side effect of NFMA (and related environmental laws) was a significant change in the Forest Service workforce. Although foresters still formed the largest group of employees, many other specialists—in fields such as wildlife biology, landscape design, ecology, hydrology, soil science, environmental economics, planning, sociology, and archaeology—were brought in to help prepare environmental impact statements and forest plans (Farnham and Mohai 1995). By the late 1980s, foresters comprised only 50% of the professional staff (Sabatier et al 1995). As the new staff became absorbed into the culture and began to move into management positions, internal pressures helped move the Forest Service toward a more holistic, multi-faceted view of its mission (Thomas and Mohai 1995). By 1993, a wildlife biologist, Jack Ward Thomas, became the first non-forester appointed as Chief of the Forest Service.

In 1998, in the midst of the Forest Service's ongoing failure to craft updated NFMA rules that could withstand public and judicial scrutiny, a Committee of Scientists was appointed by the Secretary of Agriculture to fundamentally rethink the Forest

Service approach to planning (Committee of Scientists, 1999). Its central recommendations were to shift Forest Service *goals* from commodity outputs to broader ecological sustainability, and its *approach* from primarily internal, technically-driven decision making to an open, collaborative planning process. These two themes are discussed in the following sections.

4.7 New Forestry, New Perspectives

Starting in the 1960s and accelerating through the first Earth Day (April 22, 1970) and into the rest of that decade, scientists and environmental advocates began exploring new paradigms for natural resource management. This new movement combined elements of progressive conservation (e.g., belief in science-based management) and preservation (e.g., desire for undisturbed wilderness) with new scientific findings about ecosystem complexity and a growing mistrust of traditional, agency procedures (Keiter, 1994). As early as 1970, Caldwell noted that “the natural processes of physical and biological systems... do not necessarily accommodate themselves to the artificial boundaries and restrictions that law and political economy impose upon them.” That same year, Forest Service Chief Edward Cliff opined that “an ecosystem approach to multiple-use management, our National Forests, and rangelands can contribute to a better living for present and future generations” (as quoted in Fedkiw 1999). But widespread acceptance of ecosystem-based management as the appropriate model for the Forest Service would not come for another 20 years.

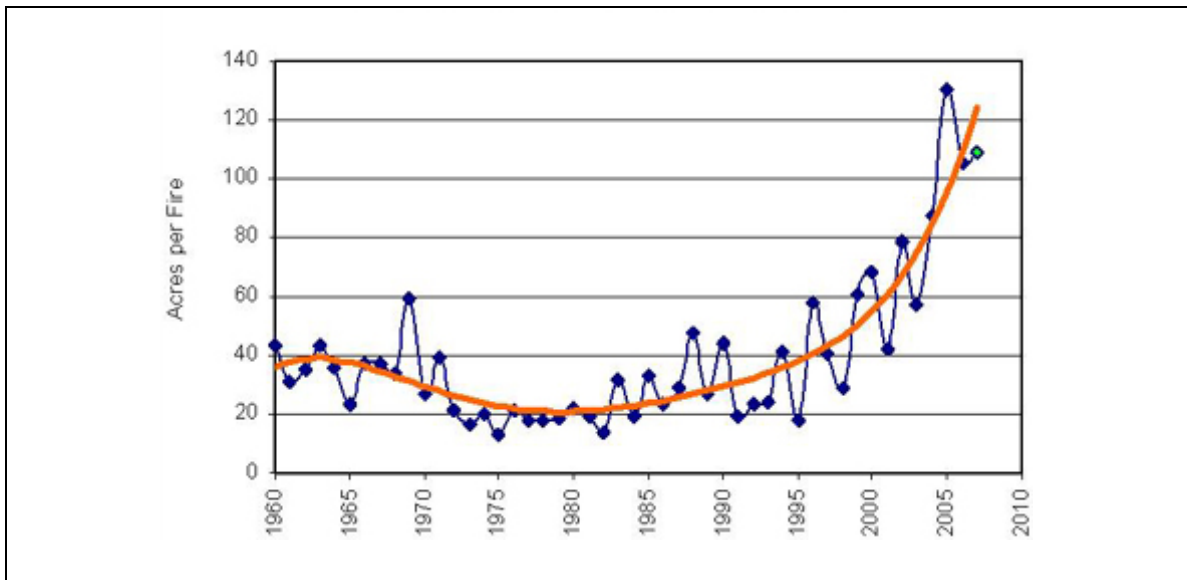
In the meantime, there were many reasons to believe that existing approaches to management were making it difficult to achieve desired results. One recurring debate involved external impacts on designated wilderness areas. How could the “primeval character” of these lands be maintained if roads and clearcuts were allowed immediately adjacent to them? Efforts to create “buffer zones” around wilderness areas were resisted by the Forest Service, asserting the primacy of multiple-use on Forest Service land unless otherwise instructed by Congress. This was affirmed in the 1980 Colorado Wilderness Act which declared that “the fact that nonwilderness activities or uses can be seen or heard from within the wilderness shall not, of itself, preclude such activities or uses up to the boundary of the wilderness area.” Similar language was included in 21 state wilderness acts (Kelson 1998). In other words, only Congress could draw the limits of wilderness on the map, and there they would remain. Even more complicated legal and political issues surrounded debates about how to manage water and the complicated system of water rights in, near, or with impacts on wilderness areas.

The traditional Forest Service approach to fire management also appeared to be breaking down. As a result of decades of deliberate and highly successful fire suppression (see Fig. 4.2 above), by 1960 the number of wildfires and the total area burned had dramatically decreased. However, the resulting combination of dead wood, thick undergrowth, and densely planted replacement stands resulted in a buildup of flammable materials, enhancing susceptibility to large-scale fires as well as insect and

disease outbreaks in many forests. By the 1980s, many areas that had historically experienced frequent, slow-burning fires were now witnessing uncharacteristically intense, wide-ranging, and destructive wildfires (Figure 4.4). The expansion of residential development in previously rural areas near forests exacerbated resulting impacts on human life and property. Defying all their training, rangers were forced to ask whether some fires should be allowed to burn.

The Endangered Species Act (ESA), which regulates activities that might harm threatened or endangered species, provided perhaps the clearest example of the limitations of existing management. By making species protection trump virtually all management goals except national security, the ESA forced federal agencies, particularly the Forest Service, to change their ways. The Act explicitly linked species conservation to habitat preservation and scientists were realizing that isolated parks and wilderness areas would not be adequate to prevent further losses (Keiter 1994).

By the mid-1980s, the northern spotted owl had become the symbol for species in need of large areas of old-growth forest for their survival. In 1991, a federal judge issued an injunction against all timber harvest on forests within the range of the northern spotted owl (i.e. western Washington and Oregon and northern California). He found that the Forest Service had not complied with provisions in NFMA that required agency plans to provide for maintenance of "viable populations of existing native and desired non-native vertebrate species." Around the same time, several blue-ribbon



Source: Western Institute for Study of the Environment, based on data from the National Interagency Fire Center

Figure 4.4: Trend in average acres burned per wildfire

scientific committees issued reports projecting how much federal land would need to be preserved, and how much timber harvest could be allowed, to maintain viable spotted owl populations (Thomas et al 1990, 1993; FEMAT 1993). These panels essentially overturned the longstanding assumption that high production forestry and species protection were compatible (MacCleery 2001). As a result of these scientific and legal developments, a new tri-state, multi-agency, regional approach to management was enshrined in the Northwest Forest Plan, resulting in drastic declines in timber sales (see Fig. 4.1 above and additional discussion in Chapter 5).

The upheavals described above were accompanied by turmoil within the Forest Service staff. In 1989, fourteen forest supervisors from Montana and northern Idaho sent

a letter to Forest Service Chief Dale Robertson complaining that continued high harvest levels were being opposed by many stakeholders and were placing other resources at risk. Jeff DeBonis, a timber sale planner, sent a similar letter to Chief Robertson and launched the Association of Forest Service Employees for Environmental Ethics (AFSEEE, later shortened to FSEEE), a forum for dissenting employees. A Forest Service biologist, Jerry Franklin, began to sketch out and promote a “New Forestry” that would incorporate emerging findings in ecosystem science while maintaining timber production (Kohm and Franklin 1997). For example, he suggested that foresters could maintain more diverse habitats by leaving some downed logs, standing dead trees, and clumps of live trees within harvested areas—a major departure from standard practice. More generally, New Forestry would require managers to look at forests as complex, adaptive ecosystems, not tree farms (Gillis 1990). Predictably, criticisms were lobbed at this new idea from all directions: The Wilderness Society rejected it as a weaker alternative than straight out preservation and the Forest Resource Alliance, an industry trade group, thought it would only be feasible if previously protected lands were opened up for partial harvest to make up for the lower yields.

Building on New Forestry ideas, Chief Robertson launched the “New Perspectives” initiative in 1992 to put ecosystem concepts into practice Service-wide, including a commitment to end clear-cutting as a standard practice on all National Forests (MacCleery 2001). The following year, President Clinton appointed a new Chief,

Jack Ward Thomas, a biologist who had become famous for his work on spotted owls, and Thomas adopted the term “ecosystem management” as an overarching goal. In 1994, the Forest Service issued a National Framework that defined ecosystem management as an approach that “blends the needs of people and environmental values in such a way that National Forests and grasslands represent diverse, healthy, productive, and sustainable ecosystems” (USFS 1994). The accompanying action plan operationalized ecosystem management by “allowing multiple-use benefits to be realized within the capabilities of [forest] ecosystems” (Fedkiw 1999).

As the New Forestry, New Perspectives, and ecosystem management initiatives unfolded, prospects for their successful nationwide implementation appeared decidedly mixed. One optimistic observer (Keiter 1994) believed that these new approaches could force managers to break down “the man-nature or utilitarian-preservation dichotomy that has characterized natural resources policy for so long.” He went on to identify five core principles for success: cooperative, interagency processes; grounding in cutting edge research; focus on biological diversity; broad public participation (“with national interests prevailing over local interests in the case of irreconcilable conflict”); and sustainable resource use to maintain local economies. But others noted significant technical, legal and organizational obstacles, including confusion about what ecosystem management was (“a dung pile is as much an ecosystem as a watershed”), concern about how it might affect existing statutory mandates, and lack of Forest Service staff

training, expertise, and, in some cases, willingness (Davis 2001). Keiter and others (e.g., Haeuber 1996) also noted that ecosystem management had no explicit statutory support and thus remained vulnerable to the shifting winds of agency leadership and public attention. In fact, the midterm elections of 1994, which gave Republicans control of the U.S. House and Senate for the first time in 40 years, resulted in a whole new set of committee chairs who made it clear that ecosystem management was not on their agenda (Davis 2001).

But there was no possibility of retreat from ecosystem science and management principles once they had been introduced. Internal and external attitudes toward resource management agencies and their professional personnel had changed for good (Kennedy et al 1998). Changes were also evident on the ground. Natural wildfires were now allowed to burn unless population centers were at immediate risk. Controlled burns were deliberately introduced to mimic natural processes and clear out accumulated fuels. Restoration forestry (in other words, using selective timber removal to contribute to the rebuilding of degraded ecosystems) had become popular as a way to marry conservation with economic production. Based on a large-scale study of the Forest Service, Butler and Koontz (2005) found that the agency had “incorporated numerous ecosystem management components into its objectives.” The greatest success was achieved in integrating new biological findings and deploying collaborative

techniques, but the agency continued to struggle to incorporate social science findings and implement adaptive management.

In twenty years, resource management had forever changed from a focus on harvesting resource units from designated parcels of land, using technical and engineering solutions to maximize production, to “an ecosystem-scale perspective where [managers] collaborate with a range of groups to manage for a broad set of values” (Yaffee and Wondolleck, 2003).

4.8 Evolving approaches to public participation

4.8.1 Early days

A 1905 letter to Chief Forester Pinchot from his new boss, the Secretary of Agriculture, informed him that, in the National Forests “local questions will be decided upon local grounds. Industry will be considered first, but with as little restriction to minor industries as may be possible” (Wilkinson and Anderson 1987). In this context “Industry” referred to the timber industry, whose health was the *raison d’être* for the Forest Service. In keeping with the dominant progressive conservation philosophy of the time, the expectation was that specially trained foresters would use their expertise to efficiently and scientifically provide timber to private logging companies into the indefinite future. Because the purpose of public lands was to facilitate resource use, early laws also assumed extractive users would have a strong voice in setting the rules.

This approach prevailed through the first half of the twentieth century. One observer concluded that early public land laws created “a number of private privileges, which morphed into expectations, and became a sense of entitlement among commodity users.” (Nie, 2008) Jurisdictions surrounding forests were also accommodated, with extra opportunities for review of proposed activities and, perhaps more important, a share of the revenue raised from timber sales. Broad participation by the general public in Forest Service decisions was neither sought out nor expected.

4.8.2 Focus on process

The 1960s and '70s saw environmental groups advocating increasingly loudly for more public involvement in the fate of public lands whose management was deemed “too important to leave to professionals” (Hall 1963). New substantive laws concerning forest management (e.g., MUSY, the Wilderness Act, RPA, NFMA, and others) and broader environmental protection (e.g., the Clean Air Act, Clean Water Act, ESA, etc.) changed both the goals and procedures for land management, including greater attention to ecological impacts and explicit requirements for citizen participation. At the same time, new process-oriented laws (the Administrative Procedures Act, FOIA, and NEPA) facilitated public scrutiny of government. One forester, unhappy with these changes, exhorted his colleagues to “retrieve the prerogatives that rightfully belong to us ... and return decision making in forestry matters to professionally trained men, from

[those] who have usurped these prerogatives” (L. Hunt letter to Journal of Forestry, June 1966).

Increased citizen participation has been justified on a variety of philosophical and practical grounds, including such notions as natural rights, direct democracy, government accountability, procedural justice, consciousness-raising, and legal necessity (McKinney and Harmon 2004; Germain et al 2001). Unfortunately, increased public participation in Forest Service efforts did not always achieve the *substantive* changes that some assumed would ensue. For example, a careful study of 227 public meetings held in conjunction with the 1977 Roadless Area Review found no evidence that public comments had an effect on the final Forest Service decision (Mohai, 1987). Applegate (1977) complained that the Forest Service thinks “EIS comments, occasional public meetings, and infrequent advisory councils satisfy the need for citizen involvement.”

Many of the new environmental laws also authorized individuals and NGOs to bring lawsuits against federal agency actions,¹⁴ creating a visible and controversial role for them as enforcers of environmental law and involving the U.S. courts to a much larger extent than previously in reviewing Forest Service decisions (Burns 2001). Of

¹⁴ This trend was accelerated by the 1980 Equal Access to Justice Act (5 U.S.C. § 504; 28 U.S.C. § 2412) which reimbursed “eligible individuals and small entities” for expenses associated with successful lawsuits against the federal government under certain conditions. Parties are considered to have prevailed if “they are successful on at least one significant issue that achieves at least some of the benefit the parties sought.” Unlike most other Western countries, the converse is not true: U.S. citizens and NGOs are *not* required to cover the government’s legal costs when their litigation is *unsuccessful*.

course businesses and workers, whose profits and jobs were threatened, also turned to the courts for redress against unfavorable Forest Service decisions. One study found that, in the time period examined, “every major Forest Service decision was appealed by environmental and/or timber harvesting groups” (Sabatier et al 1995). Whether this development is seen as a positive expression of citizen empowerment or a questionable instance of courts “setting environmental policy through judicial interpretation” (MacCleery '01) is, of course, a matter of perspective.

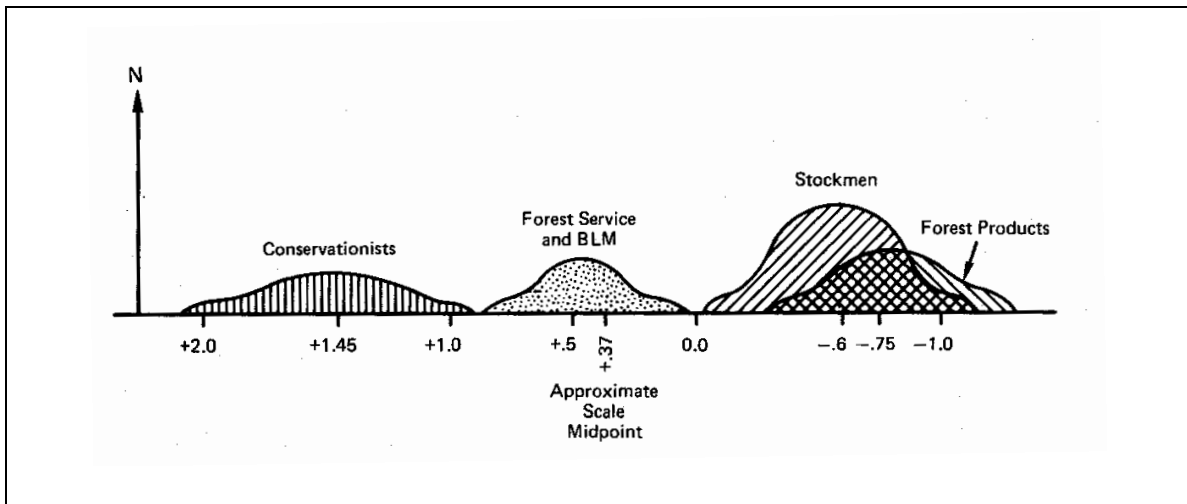
4.8.3 Agency capture

It is impossible to discuss the issue of stakeholder input to the Forest Service without mentioning the so-called “capture-conformity debate.” Early in Forest Service history, advocates for progressive conservation created the forest reserves to keep wealthy industrialists of the time from wiping out forest resources. They believed that Forest Service employees should “conform” their decisions to the latest technical and scientific standards so as not to be “captured” by external influences. In keeping with this thinking, Forest Service employees were transferred frequently, both to enlarge their experience and to maintain their primary loyalty to the agency, not the community. Promotions were (and still are) almost always associated with a move to another forest or region.

But such objectivity proved impossible since management within a multiple-use context demands that choices be made which transcend science. There is convincing

evidence that varying degrees of agency capture by industrial interests did take place at least through the 1950s (Feller 1995). Davis (2001), building on the Advocacy Coalition Framework and Punctuated Equilibrium theory (discussed in Chapter 3), explains events from that time as being controlled by a “policy subsystem” wherein a small cadre of Congressional committee members, agency staff, industry representatives, and academics with industry funding supported and reinforced each other’s views, distributing a public resource to a small number of beneficiaries with little outside interference.

In subsequent decades, increasing competition for forest access by recreational users and the rise of the environmental movement, with its legal challenges, grassroots advocacy techniques, and media exposure of public land issues, created a strong counterbalance to industry pressure. A detailed study by Culhane (1981), drawing on hundreds of surveys and dozens of interviews administered to Forest Service and BLM personnel and a wide range of other stakeholders in three regions around the country, found that individuals associated with the timber and grazing industries were convinced that environmental groups had undue influence over the agencies while environmentalists believed the reverse. Agency staff saw themselves as trying to balance the two viewpoints—and even play them off against each other—to achieve their statutory mandates. Culhane’s analysis of respondents’ attitudes is presented in Figure 4.5, providing some support for the agency viewpoint.



Source: Culhane 1981

Figure 4.5: Scores on "environmental-utilitarian" attitude scale

By the early 1990s, another large scale study conducted in 44 National Forests (Sabatier et al, 1995) found that the best predictors of timber harvest targets were, (1) previous output levels, in other words, the status quo and (2) influence from environmental groups or agencies, but found little correlation with the personal attitudes of Forest staff, budget considerations, or the views of industry, Congress, or Forest Service leadership.

4.8.4 The rise of partnerships and collaboration

As has been illustrated, the 1980s and 1990s were tumultuous for the Forest Service. Criticism was coming from Congress, the Courts, the scientific community, the public, and even from within its own ranks. Protests to protect old-growth timber and adopt an ecosystem perspective grew in intensity, while Congress resisted any reductions in timber sales. Meanwhile, rural communities whose economies were tightly

linked to harvests from National Forests suffered real economic hardship. Towns that had been encouraged by the Forest Service to locate and expand near National Forests in the late 1950s and early 1960s based on promises of reliable supplies of timber, felt betrayed and helpless when harvest levels dropped precipitously (Dietrich 1992). The changing landscape, both physical and political, engaged politicians and Congressional committees that previously had no role in public lands management. The national media sent gripping images of scenic forests, ugly clearcuts, and shouting protesters directly into most American homes. For better and for worse, management decisions were increasingly fought out in very public and often acrimonious ways. Mandated public participation, interpreted by the Forest Service in narrow, legalistic terms, merely contributed further to “a loss of public trust and ... crisis of conflict” (Germain et al, 2001).

This confluence of events led a few frustrated forest stakeholders to explore new ways to build trust, discover common goals, and potentially resolve seemingly intractable conflicts. The Forest Service also realized it must do better at involving a broad range of stakeholders upfront—and then responding to what they heard—in order to reach more appropriate and durable decisions (Fedkiw 1999). Burns (2001, p. 272) found that “an absence of well-grounded consensual problem solving [was] harming the social and economic fabric of communities and regions.” He went on to

explain that the very nature of forests as public spaces “generates a set of conflicting values and intentions” that can damage communities *and* forests if left unresolved.

Early efforts at collaboration, such as the much-dissected Applegate Partnership in Oregon (e.g., KenCairn 1995) and Quincy Library Group in California (e.g., Braxton 1995, Blumberg and Knuffke 1998), plus many less well-known examples, often got their start when a few individuals on opposite sides of a forest issue decided to cross the barricades and talk (Wondolleck and Yaffee 2000, Yaffee and Wondolleck 2003). A few bitterly divided communities slowly came together to explore common interests and shared goals of social, economic, and ecological sustainability. Other parties, from industry, environmental groups, the Forest Service, and eventually Congress and the White House, took notice, suspicious of the new collaboratives’ motives and wary of altering a system they knew how to navigate and potentially losing the power and influence they already had.

Both participants and outside observers have struggled to determine when and why collaboration occurs and how to evaluate the sociological and environmental outcomes of collaborative efforts (e.g., O’Leary and Bingham 2003; Bryson et al 2006; and many others). Whatever its limitations, today the Forest Service has embraced the notion of collaboration, including it as one of the agency’s five “management principles” in its 2010 strategic plan. The topic of collaboration appears throughout the case study interviews presented in Chapter 5 and will be explored in greater detail in Chapter 6.

4.9 Summary

The one hundred and twenty year history of National Forests summarized in this Chapter provides a picture of ongoing struggles to define and realize “the public good.” A trio of related articles, Behan (1966) “The Myth of the Omnipotent Forester,” Luckert (2006) “Has the Myth of the Omnipotent Forester become the Reality of the Impotent Forester?” and Argow (2009) “From Omnipotence to Omnipresence: The Evolution of the American Forester,” succinctly encapsulates these changes in the forestry profession and the role of the Forest Service over time, documenting a progression from “omnipotence,” to “impotence,” to “omnipresence,” in other words, from sole decision-makers, to mistrusted and often overruled bureaucrats, to multi-disciplinary facilitators of a complex process to implement societal values and choices.

To shed further light on how the broad Forest Service themes played out in specific places, the next chapter presents the results of two regional case studies, covering three different kinds of National Forests: the Siuslaw and Willamette Forests in Oregon and the Croatan Forest in North Carolina.

5. A Closer Look at Two Forest Regions

The previous chapter sketched the broad contours of 120 years of forest management, synthesizing decades of expert observation and careful analyses to identify significant events and themes. This chapter looks at three National Forests in greater depth to illustrate how the national themes were reflected in specific social and ecological settings. These case studies draw attention to the variability that occurs among systems in the same country and ostensibly governed by the same laws, regulations, and management procedures, while reinforcing some of the broader findings.

5.1 Approach and methods for this chapter

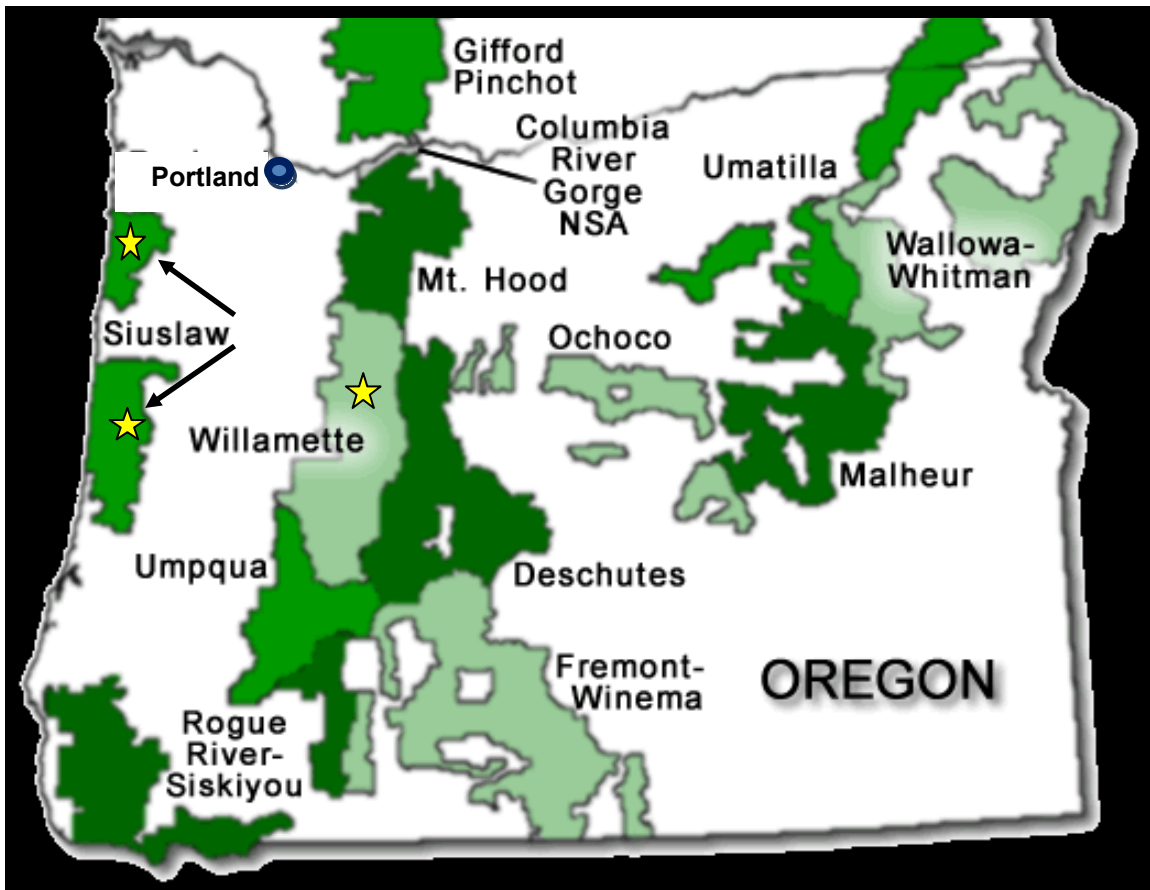
To develop this more place-based perspective on National Forest management, this Chapter focuses on two regions with very different biological, historical, and community settings: the Pacific Northwest and the Mid-Atlantic Coast. In each region, relevant primary and secondary materials, including Forest Service documents, court cases, academic and legal writing, and popular books and media, were analyzed. In addition, site visits, documented by extensive field notes, allowed for up-close observation of the ecosystem and face-to-face dialogue with the people who live near, work in, and think about the state of one or more National Forests, including Forest Service staff, community members, local issue advocates, and academics.

Among these conversations, 26 involved more formal, semi-structured, one-on-one interviews, lasting from 45 minutes to two hours. Interview questions were pre-tested during two telephone interviews prior to the site visits and were designed to explore the main topics that emerged from the historical examination and literature review summarized in Chapter 4, while allowing conversations to depart from the script when interesting new themes or personal stories were introduced (see Appendix). To reach key informants, interviews started with Forest Service staff, typically the Forest Supervisor or a deputy, and representatives of local groups mentioned in the literature. From there, a respondent-driven or “snowball” sampling technique (Bernard 2006) was used to contact additional people mentioned by first-round contacts. Due to time and funding constraints, formal, recorded interviews were limited to 10-12 people in each location, supplemented by informal meetings with others. All individuals were told about the purpose of my research project and ensured confidentiality (pursuant to Duke University’s Institutional Review Board approval) and each interview was recorded, with permission from the subject, and later transcribed. Interview transcripts were analyzed using qualitative techniques, coding for major themes and sub-themes. To maintain informant confidentiality, verbatim quotes are identified only by the general affiliation of the speaker (Forest Service, State government, environmental group, community member, or industry).

5.2 Pacific Northwest Forests

5.2.1 Background and general features

The first regional site visit explored two forests in Western Oregon, the Willamette and Siuslaw National Forests (see Figure 5.1 and Table 5.1). For thousands of years this region had been inhabited and its resources used by Native American tribes. By the 19th century, the Cascade Range in Oregon was becoming a gateway for pioneers



This Chapter focuses on the Willamette and Siuslaw Forests (starred areas).

Figure 5.1: Map of National Forests in Oregon.

rushing westward in search of land and riches, with the main Oregon Trail passing just south of Mount Hood. As happened elsewhere, the native peoples were forcibly displaced and the land was considered free for homesteading claims, living and non-living resource extraction, railroad construction and, toward the end of that century, conversion to government ownership (Bryner 1998).

The lush forests that covered the Western Oregon mountains were among the first in the country to be set aside as national Forest Reserves. In 1893, the Cascade Range Forest Reserve was created along the length of Oregon’s Cascade Mountains,

Table 5.1: Basic facts about the Willamette and Siuslaw National Forests

	Siuslaw	Willamette
Year established*	1908	1933
Total area (acres)	630,000	1,675,000
Highest elevation (ft)	4,097	10,495
Wilderness area (acres); <i>(proportion of total area)</i>	16,000 (3%)	381,000 (28%)
1978 timber harvest (MMbf)	315	693
<i>harvest intensity (bf per non-wilderness acre)</i>	513	536
2008 timber harvest (MMbf)	28	31
<i>harvest intensity (bf per non-wilderness acre)</i>	46	24
Decrease in harvest, 1978-2008	91%	96%

* The dates provided in this table indicate establishment under the current name.

followed in 1907 by the Umpqua and Tillamook Forest Reserves on the coast. In 1908, shortly after establishment of the U.S. Forest Service within the Department of Agriculture, the Cascade Reserve was divided into five National Forests, one of which later became the Willamette, while the Tillamook and part of the Umpqua Reserves were linked to form the two non-contiguous pieces of the current Siuslaw National Forest.

The Willamette Forest is characterized by narrow, steep-walled river valleys and heavily timbered slopes. Large contrasts exist between the eastern and western slopes, with heavy precipitation on the West and much drier conditions in the East as Pacific weather systems move from West to East. Although the Siuslaw National Forest also includes steep rugged slopes in its interior, it is a more temperate coastal forest and one of only two National Forests in the continental U.S. that borders the ocean.¹

Both forests are dominated by Douglas fir trees, with a significant presence of other conifers. Sitka Spruce grows in the seaward, coastal areas of the Siuslaw, where milder temperatures, frequent rain, strong winds, and thick fog are prevalent. The forests provide habitat for a huge variety of freshwater and anadromous fish, resident and migratory birds including bald eagles and the endangered northern spotted owl and marbled murrelet, and larger animals including elk, bears, and deer.

¹ An area of coastal sand dunes was “mysteriously” (Tonsfeldt 2010) included in the original Umpqua Forest Reserve, although it met none of the relevant criteria. To this day, the Oregon Dunes Recreation Area remains a strange fit within the Siuslaw National Forest.

Private lands immediately adjacent to the Western Oregon forests are not as densely populated as those near many National Forests in the East, but residents of the greater Portland area (60 miles from Mt. Hood; pop. over 1 million), Eugene (in the Willamette valley; pop. 155,000) and Corvallis (50 miles from the coast; pop. 51,000) rely on forest watersheds for water supplies and are heavy users of hiking trails, downhill ski resorts, and other recreational amenities in the National Forests. Smaller towns in and around the forests were traditionally tightly linked to the timber industry but have become increasingly dependent on tourism and retirement communities for jobs.

5.2.2. Issues and challenges

Western Oregon forests experienced most of the phases and challenges described in Chapter 4. As shown in Table 5.2, they were:

- among the first Forest Reserves set aside in the late 19th century;
- designated as National Forests in the early 20th century;
- focused on fire suppression as a central mission for several decades;
- dominated by skyrocketing timber harvests, including massive clearcuts, from the '50s–'80s;
- prime locations for wilderness set-asides and growing demands for non-timber uses in the '70s and '80s;
- heavily affected by non-forest-specific laws, such as the ESA and NEPA;

- at ground zero of internal and external challenges to traditional forest planning and management through the '80s and '90s, including major interventions by the courts and elected officials;
- the birthplace of the New Forestry movement in the late 'late '80s and early '90s;
- and, perhaps as a result of all the above, incubators for new approaches to collaboration and partnerships in the '90s and into the 21st century.

Table 5.2: Significant events in Western Oregon national forest history

Date	Event
1893	Cascade Range Forest Reserve established
1907	Umpqua and Tillamook Forest Reserves established
1908	Cascade Range Reserve broken into five National Forests (including the precursor to the Willamette); Tillamook and part of Umpqua Reserves joined to create the Siuslaw National Forest; Congress allocates 25% of timber revenues from National Forests to local counties
1933	Willamette National Forest named
1964	First Wilderness Act passed
1970	NEPA passed; requires EIS's for Forest Service actions
1976	NFMA passed requiring a detailed plan for each National Forest; Congress creates the Payment in Lieu of Taxes program to provide federal funding to counties to offset lost property taxes due to federal land holdings
1984	Oregon Wilderness Act creates 29 new wilderness areas
1990	Northern Spotted Owl listed as endangered
1990	Siuslaw and Willamette Forests issue their Land and Resource Management Plans
1992	Marbled Murrelet listed as endangered
1993	Snowy Plover listed as endangered
1993	Clinton hosts Environmental Summit, Portland
1993	Forest Ecosystem Management Assessment Team (FEMAT) report released
1994	Region-wide Northwest Forest Plan finalized with major reductions in harvest
1996	Previous forest plans (from 1990) amended to comply with Northwest Plan
1998	Congress passes Wyden Amendment authorizing stewardship contracting
2000	Secure Rural Schools and Community Self-Determination Act provides direct funding to affected counties to replace lost timber revenues

Through the 1930s, harvest levels remained low in Oregon’s National Forests as elsewhere, but depression-era jobs programs, such as the Civilian Conservation Corps and Works Progress Administration, were active fighting fires and building structures such as fire lookouts, ranger stations, and recreational facilities. The Timberline Lodge, located at 6,000 ft. elevation on the southeast side of Mount Hood, was built in 1936 and is a Historic Landmark in active use today.

Intense harvests started in the 1940s, accelerated through the 1960s, and were maintained through the 1980s (Fig. 5.2). At their peak, timber sales on the mid-sized Willamette exceeded those on any other National Forest in the country. Clearcutting, followed by large-scale herbicide applications, became standard practice, both for ease

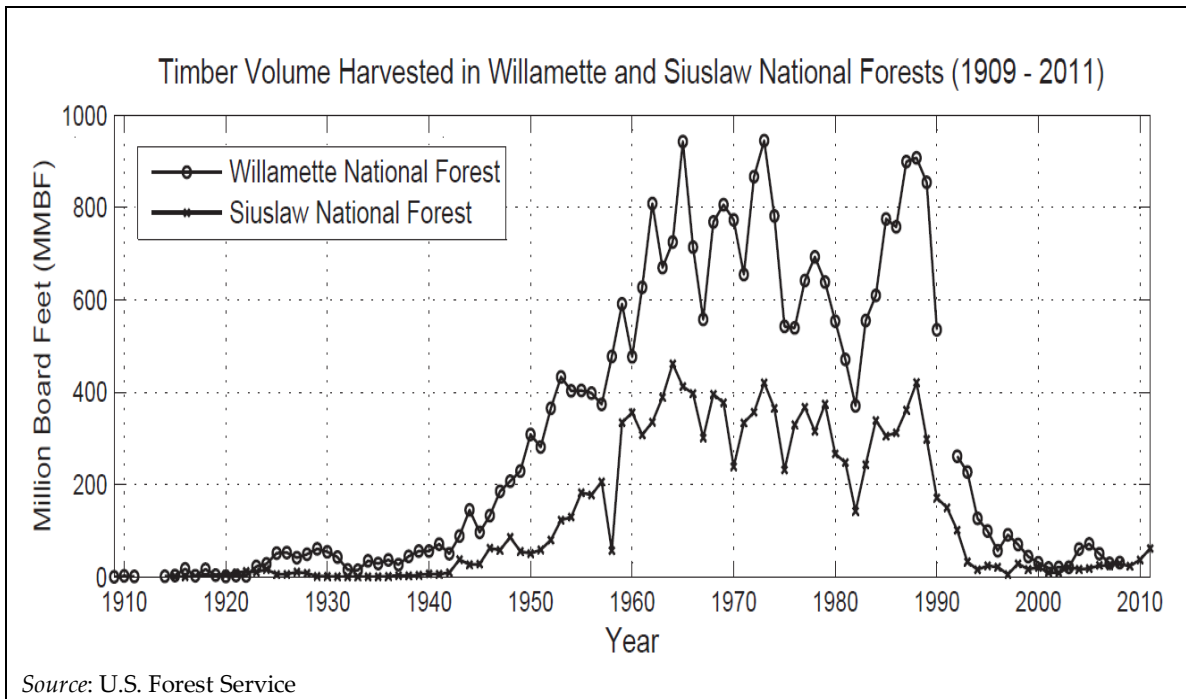


Figure 5.2: Historical trends in timber harvest on the Willamette and Siuslaw National Forests

of timber harvest and to facilitate dense replanting of more “desirable” species, typically Douglas fir.² Many explanations have been given for the Forest Service promoting harvest levels and methods that most observers now agree were unsustainable: growing demands for timber from post-war, baby boom-driven housing construction, limited supplies on already depleted Eastern Forests, tight links between Forest Service staff and private industry, exhaustion or conversion to development of many private timber lands, optimistic estimates of “sustainable yield” based on over-simplified assumptions and models, and political pressure to extract cash from the National Forests, both for federal coffers and for local communities that received up to 25 percent of harvest revenues.

In the late 1960s, mirroring national trends, citizens became increasingly vigilant about the fate of Oregon’s National Forests. The burgeoning environmental movement, combined with new ecological research findings, led to protests and lawsuits about logging techniques and chemical applications. Researchers at the University of Oregon interviewed and documented a diverse and growing recreational user community, which included everything from individual solitude seekers to well-organized hunters

² A special case of this agricultural approach to forest management took place in coastal areas of the Siuslaw. Foresters knew that some species of Pine trees would thrive if the sand dunes could be stabilized and enriched. To achieve this, they implemented a phased approach, first planting European beach grass to hold the sand in place, then Scotch broom to fix nitrogen in the sandy medium, and finally Monterey pines since the native Shore pine was not considered desirable as timber. All three of the planted species were non-native. In the end, much of the Monterey pine succumbed to disease and, to this day, the Forest Service continues to fight the invasive beach grass and Scotch broom (Tonsfeldt, 2010).

and motorists, finding that they were often in conflict with industrial users as well as with each other. (Rakestraw 1991)

Debates about forest road-building—Where should they run? How wide and long? Paved or not?—became a flashpoint issue, as the presence of roads inevitably led to erosion into streams and to increased activity of all sorts in the forests. Road construction was also tightly linked to ongoing fights about wilderness designation. The Forest Service Roadless Area Review and Evaluation (RARE) and RARE II processes (discussed in Chapter 3) covered many areas throughout the NW Oregon forests and generated strong public interest. The draft EIS associated with RARE II generated 59 thousand comments from Oregon residents alone, out of 260 thousand nationwide, and the final EIS was challenged and rejected in court. In one district of the Siuslaw forest, a 1984 lawsuit led to an injunction against any logging that would require new road construction. A news story from that time (Associated Press 1985) makes it clear that this result was not universally supported, ramping up the community discord that would grow even fiercer in subsequent years:

Associated Press, July, 21, 1985

FLORENCE, Ore. - Signs at the city limits read "Florence, Ore., Closed - Blame National Wildlife Federation" as the town shut down for four hours to protest a halt in nearby logging ... "This talk of shutting down the timber industry is talk about the death of this city as we know it," said Wilbur Ternyik, mayor of the coastal town of about 4,000 residents. About 1,000 people gathered ... to castigate the National Wildlife Federation ... the major plaintiff in a lawsuit that led to an injunction prohibiting timber sales in the Mapleton Ranger District.

Congress acted in 1984, after the RARE II process failed, by passing the Oregon Wilderness Act which created significant new wilderness areas in all of the NW Oregon Forests. The aim was to satisfy both sides — creating permanent wilderness areas while keeping other areas open for other uses. Instead, neither faction felt their concerns had truly been heeded. A pro-harvest individual commented at the time that, “ninety percent of the wilderness that exists in Oregon is not used by anybody” (Rakestraw 1991), exhibiting a common misunderstanding about the purpose of wilderness designation. On the other hand, conservation advocates who were angry about areas *not* protected began an era of tree sitting, harvest disruptions, and other acts of civil disobedience intended to halt all logging of old trees, particularly in the Willamette.

The forests in this area became testing grounds for new research into concepts such as ecosystem resilience, complexity, and biodiversity. The Andrews Experimental Forest, 16-thousand acres carved out of the Willamette National Forest in 1948, was home to much of the research on the spotted owl, the functioning of old-growth forests, and other studies that provided the foundation for “New Forestry,” described by one of its founders as a way to “manage land to accommodate ecological values and allow for the extraction of commodities” (Franklin, 1989). Western Oregon is also where Jeff DeBonis was working as a timber planner in 1991 when he created the group Forest Service Employees for Environmental Ethics (see Chapter 4) in reaction to the ecosystem damage he saw and the pressure he experienced to forge ahead with large timber sales.

He was not alone. A large-scale survey of Forest Service employees conducted in 1993 found that only 29 percent of those who worked in Region 6 (Washington and Oregon) agreed with the statement “We can sustain our forest’s current level of resource use for 100 years.” (Boyle et al, 1994)

In 1990, the northern spotted owl was listed as an endangered species. Shortly afterward, Oregon forests issued their Land and Resource Management Plans, as required under NFMA, following NEPA procedures. In light of the recent listing, the plans all included set-asides of old growth habitat for owls. For example, the 1990 Siuslaw plan reserved 31 thousand acres of old growth (5%), while maintaining projected harvests of 332 MMBF/yr and the Willamette plan reserved 365 thousand acres (22%), while setting harvest levels at 491 MMBF/yr. Although the set asides were larger and the harvests smaller than in previous years, environmental scientists and advocates believed the changes would be insufficient to save the owl from extinction. The courts agreed, and all timber sales on old growth forests in the region were halted pending completion of new forest plans and environmental impact statements. Addressing the tradeoffs between ecological and economic considerations, the court injunction found that “the argument that the mightiest economy on earth cannot afford to preserve old-growth forests for a short time, while it reaches an overdue decision on how to manage them, is not convincing today [and] would be even less so a year or a century from now.”(Seattle Audubon v. Evans, 771 F.Supp. 1081, W. Dist. Wash. 1991, p. 1096)

Communities in Washington, Oregon, and Northern California were near the breaking point when President Clinton convened a high-profile forest conference in Portland in April 1993, followed shortly after by release of the interagency Forest Ecosystem Management Assessment Team's report (FEMAT 1993). In 1994, the formal "Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl," commonly known as the Northwest Forest Plan, was issued. This new plan was a major departure from previous efforts due to its focus on biological, economic, and cultural sustainability--very different from the old commodity-oriented goal of "sustained yield" (Wilkinson, 1997).

The Plan found that the northern spotted owl's range encompassed 24.5 million acres of federal lands in Oregon, Washington, and Northern California, including parts of nineteen National Forests, seven BLM Districts, six National Parks, and smaller areas on Wildlife Refuges and military lands. To protect the owl, the Plan created seven types of land allocations within those areas. Four categories excluded all logging: Congressionally Reserved Lands (occupying 30% of the total area); Late Successional Reserves (30%); Riparian Reserves (11%); and Administrative Withdrawals (6%). The remaining 23 percent, including Matrix Lands (16%), Adaptive Management Areas (6), and Managed Late Successional Areas (1%) could be logged, subject to a variety of caveats and conditions.

Because much of the Forest Service's funding was linked to logging revenues, budgets and staffing levels in the affected forests were drastically reduced and surrounding counties that had received a portion of the timber revenues were seriously affected. From 1990-1994, dozens of lumber mills throughout the region closed, many of them family businesses that had been operating for half a century or more. The wood products industry increasingly looked to private and state lands for timber, state and local officials lobbied for subsidies from Congress to replace logging revenues, and many environmental groups remained opposed to *any* continued logging of older trees.³ These tensions and contradictions were evident to people in the region, with some hints at possible ways forward.

5.2.3 Voices from today's forests

In speaking with local forest stakeholders, including forest managers, industry representatives, environmental advocates, watershed council members, and other residents, everyone recognized that major changes had taken place in Pacific Northwest forests over the last twenty years and most, but not all, were cautiously optimistic that these changes were generally for the better. The next section discusses respondents'

³ There is significant scientific and political debate about what constitutes an "old growth" forest. Should it be defined according to the age of the oldest trees in the stand or based on its previous logging history, whether never cut, selectively cut, or clearcut and replanted? Alternatively, as some environmental advocates suggest, should old-growth forests be defined self-referentially as habitat suitable for "old growth dependent" species such as the spotted owl? (Dietrich 1992)

views on recent events and current forest status.⁴ Subsequent sections then explore three topics that elicited particularly lengthy and emotional answers: (1) the meaning of multiple-use planning in forest management, (2) the difficulties of coordination within and among responsible agencies, and (3) the role of the public in decisionmaking. The final section of this case study summarizes Oregon informants' hopes and fears for the future.

5.2.3.1 The lay of the land

As explained previously, the 1994 Northwest Forest Plan excluded 77% of federal lands within the range of the spotted owl from logging (Rapp 2008). However, the Plan has not played out quite as it was conceived. Crafted as a compromise between protecting sufficient habitat for owls while allowing continued commercial logging of large trees in some areas, ongoing lawsuits and ecological uncertainty have altered that balance.

The Plan envisioned that more than 900 MMBF/yr of timber could continue to be sold from federal lands in the Plan area. However, much of that harvest was expected to come from forests more than 200 years old, which never occurred. As a result, 2003 timber sales for all covered forests were less than half the original Plan estimates, and less than 25 percent of 1980s levels (Rapp 2008). In some places the reduction was even

⁴ To maintain confidentiality, quotes throughout are identified by the general affiliation of the speaker: Forest Service staff (FS), State government (ST), environmental group staff (ENGO), community member (COMM), or industry representative (IND).

more extreme. For example, the 1996 Siuslaw Forest Plan, revised per the mandates of the Northwest Forest Plan, excluded all but 1.5 percent of its area from timber harvest. Local informants were acutely aware of these disparities, whether they applauded or condemned them.

The two agencies [FS and BLM] have never offered the amount of timber that was supposed to be offered as part of the plan. There was litigation over every single timber sale. (FS)

[Under the Plan] a million acres of old growth occurred in the matrix land allocation, and we did not want to see that cut. (ENGO)

The Northwest Forest Plan definitely set aside all the late successional reserves... but the active management side was never implemented. ...We just reduced the harvest from 1.5 billion board feet to eight hundred million... for all your great ecological purposes. [When] we try to start doing something to get that eight hundred million [board feet of timber], they sue you every step. Because they don't want that to happen either... For 20 years I've been saying, "let's protect old growth but free up the rest of the land." (IND)

This new balance of power (or stalemate, depending on your perspective) also created new opportunities. The Forest Service—particularly within the Siuslaw National Forest, but in other Oregon forests as well—redirected much of its effort toward “restoration forestry,” i.e., taking dense, uniform-age, single-species stands, the legacy of clearcutting and plantation-style propagation conducted in previous decades, and selectively thinning them in an attempt to restore complex, late successional forest habitats and natural streamflows. These restoration-oriented projects supply a small but

stable flow of small diameter timber for commercial use, around 30-60 MMBF/year. Not surprisingly, this new direction is described in different terms by different participants:

In the early 2000s was when people really came together around this concept of managing the younger forest. It's not a formal policy in our region, but most of what we're doing is around the younger forest right now and the industry has bought into it [because] at least you're doing *something* [and] the environmental community [agreed] because they needed to be *for* something. (FS)

[We brought] a huge lawsuit which basically shut everything down in about 2000. It stopped old growth logging. And at that point, [the Forest Service] realized that the best place to get volume in the short term, while they figured out how to restart the ... program, was thinning young stands. And they realized that there's a lot more of that opportunity than they even imagined, so old growth logging really never got restarted in a big way after about 2000 because they've been focused on thinning young stands. (ENGO)

"Restoration" is the 2000 buzzword. It was "New Forestry" before and it was something else before that. ... To restore something, there has to be something broken or wrong. ... They are going in there thinning out young stands because that is the least common denominator ... that these environmental groups will allow. (IND)

A side effect of the restoration approach was that it often fostered partnerships with local communities. Existing Watershed Councils got involved and new "Stewardship Groups" sprung up, typically unincorporated, flexible gatherings of community members with varied backgrounds but a shared interest in maintaining both viable communities and ecosystems. These groups worked with forest managers to think about landscape level goals and needs.

The Siuslaw has a longer history of building trust with the communities and stakeholders ...because of its unique position under the Northwest Forest

Plan. If you can't log old growth trees anymore, you're going to start building common ground towards doing other things. (ENGO)

This is a forest that has really paved the way in community building, not in the sense of building a town, but building capacity in the community to work together. We have some non-governmental organizations that we partner with that were into collaborative planning before it was cool and kind of invented some of the ways of doing business. (FS)

Based on these pilot projects, in 1999 Congress authorized a five-year "stewardship contracting" program, dubbed the Wyden Amendment after its main proponent, Ron Wyden, R-OR (PL 109-54, Sec. 434). The program allowed rangers to design timber sales that would spur the regeneration of old growth habitat and then use the resulting revenues to support projects on nearby lands that could provide "tangible benefits to federal land" — a major departure from previous practice. The restoration harvest proceeds are passed through a locally-based, unaffiliated non-profit that then awards grants or contracts to carry out the agreed upon non-federal projects. As a result, "a revolution blossomed on the ground. [Environmental groups] formerly opposed to logging on public land helped design timber sales instead of blocking them. Logging profits financed the restoration of salmon habitat. Environmentalists worked with timber giants like Georgia-Pacific instead of fighting them." (Payne 2007).

Informants from different sectors touted multiple benefits of forest restoration and stewardship authority:

- re-establishment of forest and stream habitats for threatened, endangered, or iconic species;
- a focus on watershed and landscape scales, including a mix of private, federal, and state-owned lands;
- greater involvement of communities in decisionmaking; and
- access to a marketable product that could sustain timber-related jobs.

This forest is about restoration, yes, but it's about restoration in a way that provides goods and services for people and contributes to the economic vitality of communities. Historically timber targets drove where we did our ... projects [but] our restoration projects are driven by the priorities for terrestrial and aquatic needs. (FS)

Of all of the forests [under] the Northwest Forest Plan, the Siuslaw National Forest is the one that most consistently hits [its] harvest targets [and] it's all coming from thinning! The other side of that is that it's been probably a decade since this forest has had a harvest project appealed in court. (COMM)

[The situation] has improved dramatically. We're no longer fighting tooth and nail over every timber sale. (ENGO)

We try to have 40% of our retained receipts from stewardship timber sales go out onto [private] land ... The 40% thing is just a handshake that was made by someone several ... forest supervisors ago, but we live with it ... because it is part of the glue that allows the whole thing to work ... The ability of the communities to come together and to pioneer new ways of working together, created power itself. (FS)

As might be expected, the new spirit of collaboration and common purpose did not prevail everywhere or among all participants. Although community members and watershed council members touted the results of collaborative stewardship and

restoration forestry, a more adversarial tone remained among some environmental and logging advocates.

The counties, even though they've been decoupled, delinked to logging, they're so used to that traditional role of "rah, rah, logging" that they can't stop. And the counties show up at all of the public meetings...they read their little reports about poverty, and child hunger, and wife beating [saying], "if we could just log more we could solve these problems." [And the timber industry] says "we need to maintain our current infrastructure of mills and if you don't let us log more, we're going to have to lay off more people, we'll have to close mills!" ... The counties need to keep getting their paychecks from the treasury rather than from timber receipts. (ENGO)

[Counties] would love to see timber harvest increased again in a way that produces revenues. Because what the forest service is doing now isn't producing revenue. Right now, all they're doing is cutting little trees, and very few of them per acre. (IND)

If you have a big old growth tree that has a lot of clear and big dimension from it, you will be able to sell the product that comes out of the tree for a lot more money ... and that will generate a lot more receipts. ... Again, the amount you're willing to pay for the tree itself would go up the more trees you cut per acre. Being limited to cutting very few, small trees per acre means that you're selling things at minimum rate. (IND)

Forest Service employees also remain acutely aware of the fact that the new paradigm is less than perfect and represents a tenuous truce.

There's no doubt that our communities ... were hurt significantly by the issues associated with owls and murrelets. ... and they're still hurting in many ways. (FS)

There are people who believe the environmental community's goal still is to go out and basically decommission all the [forest] roads, use thinning to pay for it, and then ... to never do anything again. (FS)

Although restoration forestry and stewardship projects also take place on the larger, less recreation-oriented Willamette Forest, more traditional timber sales continue to be proposed on “matrix” lands—and are often challenged.

On the Willamette, they definitely do some restoration but they have more matrix [lands] where they have definitely planned and done a lot of pretty aggressive logging ... They can do that under the Northwest Forest Plan and they’ve taken advantage of that and focused on those more controversial, more revenue generating timber sales. (ENGO)

As a result, total harvests on the Willamette, despite its much greater size and fewer restrictions under the Northwest Forest Plan, are roughly equal to those on the Siuslaw (Table 5.1). A dispute is underway currently, generating escalating conflict and attracting media attention to a recently proposed timber sale in the Willamette. The narrative being played out includes virtually all of the themes that have characterized decades of Pacific Northwest forest disputes.⁵ Forest Service documents describe the so-called Goose Project as “a multi-purpose project intended to reduce fire risk adjacent to the community of McKenzie Bridge, provide timber and family-wage jobs for Oregonians, and improve wildlife forage for deer, elk and other species.” An Environmental Assessment (rather than a more detailed Environmental Impact Statement) was conducted, and the project was announced in April 2009, “using the

⁵ Different versions of the Goose Project dispute are presented by the Forest Service (<http://www.fs.usda.gov/willamette>); community opponents (<http://www.savemckenziebridge.com>); and the local newspaper (<http://www.willamettelive.com/2012/news/community-outraged-by-surprise-logging-launch/>).

Ranger District's standard outreach process: approximately 70 letters were sent to folks on the mailing list, the project notice was put on the web, and a legal advertisement was placed in the Eugene Register Guard, the official paper of record [in 2010]," launching a 45-day public comment period.

Despite adherence to this formal process, opponents in the community say they only learned about the plans in February 2012, shortly before the project was to get underway. Neighbors quickly organized, the Forest Service hosted a community meeting the following month (referred to on the opponents' website as "a patronizing circus show"), and by May a lawsuit was filed to halt the project, citing concerns about potential impacts on wilderness areas, streams, and endangered species. Plaintiffs believe the Forest Service should not pursue further logging operations, focusing instead on "projects that restore degraded landscapes, like restoration thinning in tree plantations formed by past clear cutting, decommissioning harmful roads, and enhancing fish and wildlife habitat." The most recent Forest Service response concludes by saying, "In future projects, we are looking forward to incorporating public concerns upfront in our planning process through better initial outreach, field trips, community meetings, and personal contacts," demonstrating that old lessons must often be learned anew.

5.2.3.2 The role of multiple-use planning

As discussed in Chapter 4, National Forests are required by law to be managed in a way that provides for balanced multiple uses—the wood, water, wildlife, range, and recreation called for in the Multiple Use Sustained Yield Act (MUSY). To achieve this, the National Forest Management Act (NFMA) instructs each Forest to create a spatial plan (its Land and Resource Management Plan) describing where and how each use may be carried out. However, neither MUSY nor NFMA sets *priorities* among the uses, or specifies how an appropriate balance among uses is to be achieved.

Our social contract with our main constituents is the Land and Resource Management Plan ... as amended in 1993 by the Northwest Forest Plan. That provides sort of the overarching strategic guidance and desired conditions and constraints to our more operational aspects. (FS)

It isn't fashionable politically to talk about the Multiple Use Sustained Yield Act with some of our constituents [but] Congress hasn't rescinded or repealed any of our legislation around that. ... How do we produce the amenities (clean water, clean air, recreational opportunities for hunters, for fishermen, for snowboarders) and the commodities (which, depending on what part of the country you're in, could be oak veneer, could be saw timber to build houses, could be grass that feeds and grows cattle, let alone oil and gas leasing, mining molybdenum that's in steel, or rare metals that are in catalytic converters ... hydroelectric facilities on the National Forests that produce renewable energy) that Americans rely on? ... Those are impactful [*sic*] activities and they always will be. ... What's an *acceptable* cost is where the discussion is. (FS)

The Forest Service for far too long looked at multiple use as really just a bunch of extractive uses, with a few non-extractive uses glued on for decoration. Now it's a lot of non-extractive uses, with a few extractive uses that look funny. And still, they haven't figured out any great way to harmonize those. (ENGO)

Confronted by the massive challenge of pursuing a multiple-use mission, protecting endangered species associated with old growth forests, and navigating seemingly intractable conflicts among stakeholders, the Northwest Forest Plan departed from the forest-by-forest planning envisioned in NFMA to craft a solution that attempted to achieve overall regional “balance,” while allowing some forests to focus almost exclusively on habitat restoration. There is no doubt that managers on this latter category of forests had an easier time meeting their goals.

There comes a point in time where it’s better off as, “if you’re gonna make a change give us a full change, rather than a partial change that we cannot meet.” ... We were kind of thankful... that we did not have to continue to look for timber production [on the Siuslaw] to meet the obligations of the Northwest Forest Plan. (FS)

The whole “owls versus logging” was largely resolved [on the Siuslaw]. ... The Northwest Forest Plan, for this forest, settled those issues. Not to everybody’s satisfaction, but it settled them. ... This whole forest is late successional reserve. ... Because of that ... “you’re a restoration forest, do things only for restoration,” we now have license to do what makes sense on the ground without fighting the last war. (FS)

But the businesses, individuals, and communities that had long relied on jobs and revenues associated with extractive activities on the National Forests suffered, and now argue vociferously that the balance has tipped too far toward conservation.

The Willamette National Forest is growing by about 800 million to a billion board feet of timber a year. Translating to your lawn ... say it’s growing 20 inches a year. They’re, right now, selling timber at 70 million [board feet a year], less than 10%. That means that your lawn is growing 20 inches and you’re only able to cut 2 inches. ... That’s what’s happening in the woods right now. (IND)

It amazes me that we as a country feel so rich that we can throw away 750 million board feet a year off the Willamette National Forest alone. That we feel so rich that we don't need that natural resource. When there are countries out there that would just die for it! (IND)

Few would dispute that planning can be beneficial for organizations and projects of all types, but it is an endeavor that draws on both art and science (Kidd and Ellis, 2012). Respondents in this case study expressed very mixed feelings about the value of forest planning relative to its cost, the relationship of plan language to actual projects on the ground, the most suitable spatial scale for planning, and the appropriate timeframe for revising plans.

No one envisioned, when the National Forest Management Act was passed in 1976, that decades would go by before revision of a forest plan would take place ... Nobody ever envisioned, almost 20 years later, we'd still be living with the Northwest Forest Plan. ... You take, what, 114 National Forests, and we all spend \$7-\$10 million on plan revisions—is that a reasonable investment for the taxpayer? (FS)

Planning at primarily the forest level, you end up with sort of a balkanization; you have a whole bunch of different rule sets. One of the beautiful things about the Northwest Forest Plan is that ... it's one set of rules, it's like an overarching scheme, and so somebody who knows how it works on the Willamette National Forest also understands how it works in Washington or in Northern California. ... It limits the ability of local politics to drag the plans down (ENGO)

Do we do a new plan for the whole area included within the original Northwest Forest Plan ... or do we do individual revisions to forest plans? ... There's an image of, well, you do planning at all scales and it just cascades down. But do you do NEPA and all of the bureaucracy of planning at all scales? And the answer is: if you did you would never, ever, ever be done. (FS)

I've seen a bunch of plans be adopted, but none of them ever implemented. (IND)

I think [Forest Service staff] feel like they have a legal obligation to [follow the Forest Plans] and ... I've definitely seen in their environmental analyses where they cite things in the forest plan. ... So, yes, I think they are used. ... But I wonder how the planners for [specific] projects feel about that, being that [the Forest Plans] are 20 years old, and they know the conditions on the ground so much better than these 20 year old plans. (ENGO)

5.2.3.3 Coordinating multiple authorities

Another topic that has received considerable attention from policy analysts is how coordination does or does not occur within and between authorities (Bardach 1998; Thomas 2003). This is an issue of direct relevance to National Forest management. Because the boundaries of National Forests are political creations, the ecosystems being managed typically extend beyond them and include lands controlled by other federal agencies, state and local authorities, Indian tribes, and private landowners.

The area I work in is [mostly] forest service, but there's a moderate amount of BLM land, and a modest amount of state forest land, and just under 40 percent industrial timber companies, and the remainder is non-industrial private ownership— and the management [on each] is radically different. With that landscape ... it may not be fair to say the National Forest has to provide the full range [of habitats]. (COMM)

From my personal experience, I don't think [the federal agencies] are very well coordinated. The agencies, we could take either the Forest Service or the BLM and it doesn't really make any difference, there was internal competition between [them] ... We would talk with one resource area and we made the assumption that the information ... would be transmitted and

transferred to the other resource areas on the same district, and it was not. ... We had to have this same conservation four or five times. (COMM)

Even within the boundaries of a particular Forest, agencies other than the Forest Service control certain activities (such as mining, fossil fuel extraction, and hunting permits) or enforce certain laws (such as the Endangered Species Act, Clean Air Act, Clean Water Act, etc.). Even when an activity or area is *solely* under Forest Service jurisdiction, tensions arise between different specialist groups within the Service, such as planners, foresters, ecologists, archaeologists, and administrators, each of which has its own training, culture, and constituency. These struggles were evident to all those with an interest in Oregon's National Forests.

The Forest Service does not have full authority, even over the resources of the National Forests ... For some of those laws, the agency with jurisdiction ... is a different agency of federal government. The Endangered Species Act is probably the leading case like that, but the U.S. Army Corps of Engineers has jurisdiction over floodplains and wetlands and that affects our management ... We do a lot of cooperative work with BLM. ... The Northwest Forest Plan, of course, that applies to BLM and Forest Service. We share our fire staff with the BLM here on this forest ... The Aquatic Resources Effectiveness Monitoring program which checks streams all across the Northwest Forest Plan area and assesses their condition is BLM and Forest Service, so we do a lot of work, a *lot* of work, together. Which is way easier operationally even though it presents some difficulties. (FS)

If you look at the number of laws that they're supposed to be abiding by, all of them that are on the books ... I don't think it's possible for them to meet all the laws. It's just impossible because they're conflicting, you know, and you just can't do it. So, historically they pick and choose. (IND)

The district rangers have lots and lots of independence to do their job as they see fit. ... [There are staff] that feel that their job is to just provide ecological

benefits and recreation opportunities and all that. Then there are others who think their job is to provide counties with money and provide jobs and stuff. Others are focused on land restoration because “we have a bunch of bugs and insects and stuff and my job is to restore the land.” It varies by personality. (IND)

In the forests of the Pacific Northwest, endangered species in particular became the poster children for inter-agency conflict since the ESA requires the Forest Service to consult with, and listen to, other agencies in different Cabinet departments, including the National Marine Fisheries Service and the Fish and Wildlife Service.

We have had a fair amount of tension, on the natural resource side, with [the] National Marine Fisheries [Service]. ... It has sometimes led to projects that have had huge community support, including environmental groups, including industry ... getting gummed up in the consultation process for substantial amounts of time. The other agency that has an ultimate say is the Fish and Wildlife Service. And what you have is a conflict over the recovery for [different] listed species which are using the same piece of ground ... ESA in and of itself does not have a mechanism that forces those two [agencies] to negotiate and resolve their issues formally. (FS)

Historically, the way it worked on public lands here is that the agency would put forward a project ... and then they would consult with US Fish and Wildlife or with NOAA Fisheries ... after they designed the project. And NOAA Fisheries, or US Fish and Wildlife, would then determine whether it was a take or not a take. ... To really put it bluntly, what was really interesting was you could talk to the Forest Service and the BLM here and they saw, in many cases, US Fish and Wildlife or NOAA Fisheries as being kind of enemies to the project. Those agencies held the big stick; they could stop their project. (COMM)

One proposed solution to such balkanization is to shift planning and decisionmaking to larger scales. For example, a professor at a prominent Oregon

university believed it was necessary to “move toward landscape level management that involves many districts, agencies, and private landowners.” In contrast, others believe that decisions should remain at a local level, where participants have the most immediate understanding of, and attachment to, the landscape, and where constituents and agencies can be engaged in multi-party dialogue and other collaborative techniques.

What has occurred [here] is that instead of having NOAA Fisheries and US Fish and Wildlife come in after the project's been designed, we've had [them] at the design table, helping guide the process rather than reacting to the process. And they've really appreciated being included up front ... And I think, (1) it's going to streamline what's being done, and (2) the actual work that's going to get done on the ground is going to be in a more restored nature for those particular species that we're talking about. (COMM)

What we're experiencing is, US Fish and Wildlife sits in on almost every one of our meetings as we're going through the planning process and is making suggestions. So their thoughts are being incorporated into the planning process up front, rather than ... in a consultation role at the end. ... It was really driven by the communities of place coming to the table and saying how can we do this? And, basically, asking the question, “Why do consultation at the end? Why not get Fish and Wildlife involved in the very beginning?” The light bulb came on and it was like, whoa, what a novel idea! I mean something so simple. It hadn't been in the institutional thinking. ... Almost all these agencies are very territorial and they're not used to working together. (COMM)

5.2.3.4 Engaging the public

As discussed in Chapter 4, the role of the public in Forest Service decisionmaking went from minor through the 1950s to extensive, but formal and legalistic, starting in the '70s. In some places and in connection with certain issues, public involvement has gone further over the past 10-20 years, approaching something akin to a partnership between

those who care about a particular forest. Western Oregon was in the forefront of this most recent phase and the concepts of public engagement and collaboration were very much on the minds of people there.

Environmental advocates and some community members were dissatisfied with the traditional, statutorily-driven public participation process wherein the Forest Service proposes an action, presents its plan for public comment, typically through a Federal Register notice and advertisement in a “newspaper of record,” and incorporates external input as they deem appropriate.

Most of the time, when projects are planned, [they] know exactly where they want it to end up, and I think that’s usually exactly where it ends up. ... I think there’s a culture of, “We know exactly what’s right for this piece of land, this is our plan, this is what it’s going to end up being. Whatever the public has to say, we either already thought of it and dismissed it or we know better than them.” So the outcome is exactly what they wanted, it’s predetermined. (ENGO)

There’s fairly equal opportunity for people to get involved in theory, but there are definitely instances where I really get frustrated with the process. For example, some notices for NEPA are only published in local newspapers and that’s the only indication of when a comment period starts or when a deadline is. That seems ridiculous in this day and age. ... People who hike a specific trail wouldn’t have any idea if a timber sale were planned nearby that would affect their enjoyment of that area. (ENGO)

I was on a federal advisory committee for the Forest Service some years ago ... The agencies would set the agenda, the agencies would set the place of the meeting, and the rest of us would show up ... I ended up resigning, saying it was really a waste of my time to go ... We had issues we thought needed to be brought to the table that we couldn’t get there. (COMM)

[They] try and appease us so they don’t have to do a lot of extra work, but not because they believe what we say is right. ... We say things [that are]

totally reasonable and if they haven't thought about it ... it's incredible how they can just get away with not listening to us at all! It's like pounding your head against a wall. (ENGO)

Of course, it can be hard to distinguish between being ignored and simply being unhappy that one's views were not adopted. Based on my dozens of hours of conversation in Western Oregon, there was widespread feeling among community members, industry representatives, and Forest Service staff that such a conflation is particularly common among environmental advocates. In fact, one ENGO representative came close to agreeing.

Going back to the process, we just didn't see much willingness to negotiate on parts of the project that we thought were really blatantly ignoring the law and what was best for the ecosystem. That process was bad. We didn't see eye-to-eye with the agency and they weren't willing to change. ... I feel it's so important for the ... planning team to start out being a little bit more humble ... because if they go into it with a more "open arms" approach, then the outcome is something that the community will be more supportive of ... And by saying "the community," I mean us, the environmentalists. *[laughs]* I want them to listen to *us*. (ENGO)

Some of those who criticized the typical public participation process also admitted that it was at least familiar—a known quantity—for regular participants in Forest Service decisions. They expressed ambivalence about the fundamental fairness of such a system, but were reluctant to upset a status quo that was in some ways working for them.

One of the major ways [to have influence] is through the NEPA process ... the comment, appeal, litigation spectrum. 'Cause we know the process, it's

easy to get involved that way. I don't think very many average citizens get involved in that way, but it is our legal right as citizens ... and I think it's good to exercise that. It's like voting just to maintain that right, but I don't know if it's effective or not. (ENGO)

If you understand the process, you can work the process. If you know how to get input in appropriate places ... then the process is open and accessible to the public. ... But there are a lot of people around who have differences of opinion but don't know how to work within that structure, and if you asked them they'll tell you that [the Forest Service] never listens to anybody. (COMM)

The post-Northwest Forest Plan shift toward restoration forestry and stewardship contracting, combined with a determination in some communities to overcome decades of conflict, helped launch a new movement. Although it goes by many names and the social science that underpins it is still developing, collaborative resource management has taken root in Western Oregon. This approach changes the timing of public participation from commenting on Forest Service proposals after they are formulated, to working together with the Forest Service and other stakeholders to craft a shared vision for the forest before any decisions have been made. Praise for the power of collaboration was a persistent theme in the comments recorded, and its supporters were eloquent in their endorsements.

In [one] National Forest ... they brought all the radicals from either side together and came up with a way to treat this district ... It took about five years to develop, because they really took it slow and got a lot of buy-in from a lot of different people. ... It worked great, they got everyone onboard ... Now there's a lot of trust built, a lot of relationships built, and that forest is moving forward, with other very similar projects on a larger scale. So it's a good lesson for a lot of forests I think. (ENGO)

[Stewardship contracting] has been really effective, partly because it is involving different stakeholders with different opinions. We find common ground and build relationships with the forest service. All that goodwill moves projects forward more quickly. ... We go on field trips, and we have multi-party monitoring efforts ... and we make comments right there in the field ... and encourage [the Forest Service] to learn from mistakes that were made on the ground. ... Seeing it, and commenting on it, is really valuable. They've been open to learning a lot and changed their practices accordingly because all these people are behind them on it. Then they'll take those on the ground lessons and apply them to the new projects. (ENGO)

If you have all people at the table that think the same way, you're going to get only one answer. What's really important is that you need to get the broad range of diversity. We need differing opinions and inputs so that we start to ask those hard questions. ... The folks at the environmental extreme have some good points that need to come to the table, and the folks at the industry extremes have some points that need to come to the table, and somewhere in the middle we can start to find solutions. They're not always going to be perfect solutions, but I think they're going to be better solutions than the win-lose scenario. ... Part of it is trying to break the mold of one-size-fits-all. (COMM)

After a very controversial, litigious [period], there was a group of diverse constituents (this started in 2005) that continued meeting regularly ... Well before starting [a project] and triggering the more formal public scoping processes associated with National Environmental Policy Act implementation, the [partners were] meeting regularly regarding activities within the watershed tied to their shared concerns. ... I think what's emerged from almost 8-10 years of the existence of the stewardship partners is a way to talk about what it is we want to create on the land. Not what we want to *take*, but what is it we want to *create* on the land that the partners generally reach some agreement on. (FS)

I think the wave of the future, especially as we live in constrained budget environments, is how and to what degree do our constituents themselves, who are very diverse, talk about the kinds of activities that we want to do ... Success hinges on that 'cause we don't have the assets to play the technocratic role that in [the 1950s] typified the Forest Service ... We don't have all the answers nor the capabilities of gaining all the answers ...

Collaborative groups ... provide a venue of public engagement on, “what is it we hope for and share in this landscape?” All that gets used, informally in many cases, in the NEPA compliance process. ... Oftentimes we’ve vetted that with the partners well before we pull the trigger on the formal public scoping process. (FS)

In the mid ‘90s, I felt like most of my time was spent in some version of conflict ... Our employees were going out and they were doing the same work over and over again. They’d offer [a timber sale] and get litigated ... Through the negotiation and the settlement agreement that we were able to do, we wound up getting resolution and being able to agree on a number of sales that we could offer, including some that cut older forests. The litigation specialist was fairly amazed we got that agreement. (FS)

Not everyone was equally convinced of the value of collaboration. Within the highly charged context of old-growth forest management, including ongoing litigation and nationwide lobbying campaigns, some individuals expressed concerns about both the collaborative *process* and the impact it might have on management decisions. Four recurring themes ran through these critiques.

a) **Anxiety about the legal underpinnings of collaborative efforts.** With the exception of stewardship group management of some timber receipts, collaborative efforts currently have no statutory authority. Any decisions reached are binding only in so far as participants wish to maintain good relationships. The applicability of the Federal Advisory Committee Act, whose purpose is to prevent special interest influence over federal decisions, remains particularly unclear.

The precondition for collaboration is usually to lay down your sword. We don’t want to put down our sword ‘cause without the threat of litigation we are powerless. ... We collaborated in places we think are headed in the right

direction and we have a lot to gain from. ... But, you know, there might be a situation where you're collaborating ... and everything's going great and we would say, "Well, the collaboration's on hold while we litigate this thing."
(ENGO)

We have been at the center of the storm around FACA. When we first started we had both BLM and the Forest Service sit on our board. [But] when Hillary [Clinton] was working on the National Health Plan ... the whole issue of FACA rose to the top and it affected us right here in southern Oregon. We actually had a representative from the Attorney General's office come here from Washington D.C. to inform us and our agency partners that we were in violation of the Federal Advisory Committee Act. (COMM)

b) **Unease with a perceived focus on process rather than results.** The vocabulary of collaboration, with its emphasis on trust-building, active listening, and achieving consensus, can seem obfuscatory to some participants, particularly from industry, who are more bottom-line, action oriented.

Management has been reduced to the least common denominator, meaning we can only do the thing that everyone agrees on and since a bunch of people don't want you to do anything, that's where it's tended to. ... Say you're a farmer and you want water for 100 acres and someone says, "I'll give you water for one [acre]." Why would you block the one? ... We do what we got to do. (IND)

As long as consensus is defined as least common denominator, then collaborations really are worthless. ... As long as they are the way they are, they're a feel good exercise and they're another way for the environmentalists to get what they want. (IND)

The old guard—"The purpose of this forest is to cut down trees, and it used to cut down trees and now it doesn't so much anymore, and bring back the good old days"—is a voice that's still out there. ... Some of those people choose to participate in the local collaboratives ... and some of them don't because they [say], "This is a bunch of namby-pamby hand-holding about restoration and I want to bring back the good old days." (FS)

c) **Conflicts between local and national agendas, values, and priorities.** A widely circulated and much discussed 1999 article by Michael McClosky, then Chairman of the national Sierra Club, attacked place-based collaborative efforts as undemocratic and susceptible to capture by local economic interests. Others fought back, arguing that local communities were in the best position to understand and protect nearby resources (e.g., Kemmis and McKinney 2011). The latter view prevailed among my primarily local respondents, although one Forest Service staffmember acknowledged the opposing viewpoint.

The communities of interest, both the environmental community and the timber interests, have been opportunistic predators. They have both cut and run when they thought they might get a better deal someplace else. Our perspective is that the one place for stability is the communities of place. The communities of interest both have their own specific interest at heart, which may or may not be in the best interest of the community--or the environment for that matter! We've been kind of caught between these warring communities of interest—one wanted cheap labor and cheap material, the other wanted to put a fence around it and protect it. (COMM)

We found that [the ENGOS] loved us when they needed us [but] they were very fickle lovers. We're finding the same thing with the timber interests; they herald us as the next best thing since sliced bread until they see an opportunity to get a better deal [through Congress]. I guess what I'm seeing is that, from my perspective ... there's probably been greater environmental integrity [within our group] than at the Board of Directors of [a national ENGO]. (COMM)

A national red alert went out both from the Sierra Club and the Audubon Society for their membership to not participate with groups like [ours]. ... It was simplified to the point of saying "these [collaboratives] want to do away with all the regulations." Well, that wasn't true at all! What it meant was that

these organizations were going to have to ... become involved at the community level, and they didn't want to. ... Basically [McClosky's] intimation was that we all fell off the turnip truck and we don't have the capacity or the ability to stand up to big lobby interests. (COMM)

[ENGOS] would say, "I like working with you and coming to these meetings, but I think I can get more out of going to D.C. [A National Forest] is a national symbol, and it's important to us as a national symbol, and we want to actually fight it at a national level, because that has other values for us." (FS)

d) **Distrust among stakeholder groups and fears that some participants will not act in good faith.** Effective collaboration depends fundamentally on trust (Daniels and Walker 2001). Where trust has not been built up, or is fractured by specific events, it will be extremely difficult to find common ground.

[Collaboration] was tried on the Willamette. ... It failed miserably. Mostly because of the players who came to the table. There were some people who just did not want to see it work, primarily the more extreme environmentalists that don't believe in forest management. (ENGO)

We still need [the timber industry] because we want to see restoration done — we can't do that without a timber industry — but so much of the industry is based on promoting a return to 1980s high levels of logging which is unsustainable and illegal. (ENGO)

Those who make money by extracting the resources should have a smaller voice, because they can afford to have a bully pulpit and they can overtake the discussion. ... The ENGOS and the average citizen can't compete. (ENGO)

There wasn't a rule that everything your group did had to be in alignment, but that you wouldn't *surprise* each other. But [one of the ENGO partners] sued and they forgot to tell the partners. I would say that was almost the end of the whole partnership. ... This is partly why people don't trust them: they appealed [at the last minute] and nobody [on the other side] did. ... One

fellow who is a multi-generation resident up in that area has worked hard to build the trust, but when they go back to lobby [together] in DC, he often hears things said there where he goes, “I’m not sure I should trust you.” (FS)

Place-based conservation assumes that everybody is going to come with a certain sense of integrity, is willing to discuss beyond position ... and really commit to exploring genuine shared interest. ... They’re experiencing some growing pains with an entity or two in the environmental community that’s like, “We’re gonna pull out of this because we don’t get our way” or “We’re gonna be incredibly strong positional advocates and if our position can’t be satisfied ... we’re not going to play.” (FS)

I wouldn’t be good at my job if I said, or even thought, there were opponents. I know that sounds terrible and cheesy, but you have to work with everybody. The only opponent is anybody who isn’t open to collaboration — people who won’t talk, people who are out there shouting no matter where they are. (COMM)

The misgivings discussed above are in line with critiques sometimes leveled against collaborative governance in the academic literature. Nevertheless, supporters of collaboration felt that most of the concerns were either invalid, or could be overcome.⁶ They believed that the key to long term success — and their recommendation to others exploring collaborative decisionmaking — was to focus on patient, long-term relationship building and small but tangible successes.

Management agencies respecting and learning from their constituents, their public, is an important factor--actually taking into account the legitimate views of all these stakeholders. It’s important that they actually listen, that

⁶ On the FACA question in particular, insiders attributed the concerns to either overly cautious agency lawyers or those who wanted to see collaboration fail. When a stakeholder group is not appointed or directed by federal agency personnel, and their advice is simply one more input to decision making, FACA restrictions do not apply.

people feel valued and empowered in the process, that's definitely something I've learned here. (ENGO)

If you don't connect with the people, it doesn't matter how good the science is. We would do collaborative field trips where anybody could sign up. ... I'd give them little 3x5 cards and just say, "Commune with this place. Write what you're feeling here, what is going on for you." (FS)

One of the challenges with these groups, it takes a long time to build trust. Many of the people who are engaged are not getting paid to be there. ... It takes finding areas of common interest, and being able to come together around them. One of the focuses that we often had was to find the little successes. You've got to have the little successes and you've got to have them fast. (FS)

Sen. Hatfield [passed a rider] saying that the agencies could move forward with projects without doing full environmental review. We said that if they moved forward and did that ... simply to get the cut out, we are wasting our time at the table. And they actually ended up throwing out all projects until the rider expired. That was due to the relationships that had been developed. ... I'm not saying what we're doing in the collaborative process is perfect. It's not, by any stretch of the imagination. But I think it's opened the door for finding solutions that these kind of entrenched positions don't allow to happen. (COMM)

The Siuslaw is cutting edge when it comes to stewardship and ... collaboration. Over time, it has gone from being ... something that they were new to, to becoming so ingrained that... they don't even think about collaboration or about public input as being separate. They think about it as how they do business. ... I take it for granted too, that they would involve us, and that we would be involved, and the public at large would be involved, and that there's that understanding. (COMM)

5.2.4 The future

Marcot and Thomas note in a 1997 article that the Northwest Forest Plan lacks "goals for maintaining intergenerational equity" and wondered whether this would

become “a point of contention in public forest management.” Fifteen years later, it’s clear that people are still worried about what future generations will face.

So often, our environmental decisions are based on short-term economic gains, rather than long-term economic *sustainability* that may require lower levels of economic gain [now]. A lot of the issues related to harvest today, we’re having to make up for those short-term decisions of the past that maximized production and income for that generation. (FS)

All respondents were asked how they imagined the future of Oregon’s National Forests and surrounding communities. Did they believe the situation was getting better or worse, and why? What were the biggest opportunities and threats? And what would “success” look like from their perspective? In general, timber representatives want access to more and bigger trees, see themselves as having lost substantial control to the ENGOs, and hope to alter current Forest Service priorities. Most environmental advocates hold on to a vision of fully protected National Forests with little if any continued logging. Members of community groups are open to both logging and conservation efforts, but want to maintain local flexibility to determine the appropriate balance. And Forest Service employees, frequent targets of criticism from all sides, look to capacity building, strong relationships, and an inclusive decisionmaking *process* as the keys to adapting to whatever changes might come.⁷

⁷ The impact of climate change on forests was mentioned in passing only seven times over hundreds of pages of interview transcripts, despite several questions that asked specifically about threats for the future. As one community member said, “Then there’s climate change and how that’s going to affect watershed and forest health... That’s a whole different ballgame!”

On the topic of threats, industry representatives said:

[The biggest threat is] the lack of active forest management, the lack of treating vegetation [i.e., removing timber] on the ground. That includes keeping the young stands from getting overcrowded and making sure we are always planting new stands to get trees for the future. (IND)

We are lacking that final decision point, nothing is ever final. Everything is negotiable. ... You have the courts, then you have Congress, then a new administration. So it doesn't matter ... the process and everything isn't going to settle anything. (IND)

[The ENGOs say] "let nature do it." Basically we shouldn't do anything; we should stand back and not manage 24 million [acres], not manage our National Forests and let nature burn where it's going to burn, and let the new trees come in ... You know, that could be a policy position—just walk away and make them National Parks. I don't believe that's why they were created [and] I don't believe that's what we should do as man[kind]... We should take charge. If we want this forever and ever, let's get a plan and let's operate under that plan. (IND)

ENGO representatives had a different perspective on the threats:

[The National Forests], especially the wet forests, should be locked up and used for human renewal, for clean water, and be protected for carbon sequestration. Right here, this is a public asset ... one of our protections against global warming is to keep these forests intact. (ENGO)

In twenty years we are not going to have addressed all the thinning opportunities in the managed plantations. That's going to take more like another fifty years. And then—maybe—there could be a niche market for one tree here, ten trees there. But this overall goal of 45 million board feet per year? No. We can continue to get the wood products we use from private industrial forests. (ENGO)

As long as you can make money off logging the forests ... they will never be permanently saved. Money is the root of all evil, greed runs the pressure to extract our natural resources over what is sustainable ... If you're a little bit greedy, there'll always be that pressure to extract. (ENGO)

We could see legislation and policy changes that make it a lot easier to log and build roads, etc. in pristine forests, based on fear of fire. Fear-based legislation will make it easier to, in a way, just go back to the logging that we were used to in the '70s and '80s that left us in this terrible situation we have now. (ENGO)

From community members:

I see threats from DC or the region[al office] ... their interpretation of how things are done or are not allowed. When I talk to people who are in the environmental movement ... they want to see *less* flexibility in how the forest service can work because of places where things aren't going well. Here, we're looking at [flexibility] as a *good* thing 'cause our forest works so well and we can do what we want. The other threat I see is change in personnel. [In this region] there has been relative continuity, and people work well together, or at least ... we know why and how to fight, and how to get along again later on. (COMM)

There have been some models talked about ... of sustainable harvest on long rotations, you know, 300-year rotations and things like that. And I don't think those kinds of options are precluded ... Older trees can produce a timber product that is qualitatively different ... and I think is not something that we should assume there should never be any more supply of. (COMM)

And from the Forest Service perspective:

If suddenly the direction from the administration was [that] we need to cut 400 million [board] feet again every year off of the Siuslaw National Forest, that would affect our ability to maintain our collaboratives and relationships and would undermine what we've done here. (FS)

The trajectory we're on now, we're thinning to achieve, yeah, a restoration purpose. Within 20 to 30 years we will have achieved that purpose and we'll be looking, we're already talking about what our next act is. Our hope is that whatever the future looks like that we can continue to be relevant in providing things that society values in both an ecosystem and in a human community way. Recognizing that those change over time. (FS)

Finally, each respondent was asked to imagine what a successful future would look like on the National Forests they cared most about. A sampling of a few of their replies provides a fitting wrap-up for this exploration.

Thirty years from now, this forest will be successful if it weathers the next big transition. The good things we have going now are not sustainable forever ... It's more about organizational capacity and community capacity, to be able to adapt to whatever changes get thrown at us. (FS)

In 30 years, success I really think is, "Have we held onto the ability to continue to collaborate with people and work together?" We lose that, it doesn't matter what causes change. We [could] get a 9.0 earthquake ... we could have the really large fire that occurs every 350 to 400 years. What will get people through is the ability to communicate and work together based on relationships ... The environment will adapt. Species will adapt and change. Some will win, some will lose. Some will come, some will go to lower populations and eventually increase. But it's as humans, if we can keep up those communications, that's where we have to measure our successes and failures. Not in individual outputs. (FS)

In a 20- to 30-year period ... a lot of these forests will be thinned, we'll have healthier streams, we'll have more old growth habitats. Without changes in policy, we don't have good guidance right now as to what we do next ... Are these forests natural enough to just leave alone? Do we need to sustain a timber industry past that 30 years? ... As humans we're not very good at thinking that far ahead ... Taking a long term and large landscape view is important [but] taking small models, where you build trust and relationships and a well-supported and scientifically-based management regime in a small area, can definitely translate into a larger context. (ENGO)

If all of the forest management projects being proposed on forest service land are based on science-based ecological restoration, and that's all we're moving forward with, then I would call that a success. If the science says that our ecosystems are restored, our streams are healthy, we've done what we can, our native wildlife is thriving, including salmon, we've reintroduced fire into fire-dependent ecosystems ... that would be a great success. (ENGO)

[Success would occur] if management of the land was actually put back into the hands of professionals. Meaning *doctors* are actually treating patients, rather than the people in the waiting room which is what's happening now. ... Having people that are actually trained in this doing what's right, and they are the ones in charge and not being second-guessed by the courts or anything. That would be success to me. (IND)

If things don't get worse and if we manage to all still get along somewhat and have this fairly positive collaboration ... that's gonna be success ... The only way that anything ever progressed was when people communicated ... outside of their comfort zone. (COMM)

5.3 Eastern Forest

5.3.1 Background and general features

The second area explored, the Croatan National Forest, is located in the coastal plain of Eastern North Carolina (see Figure 5.3). This forest provides a stark contrast to the Western Oregon forests. Despite being managed under the same set of laws, regulations, and Agency procedures, the Croatan was created under very different circumstances, displays a unique set of ecosystem characteristics (including the human elements of the ecosystem), and faces its own management challenges. Nevertheless, some overlapping themes emerged—notably the never-ending struggle to balance multiple-use objectives on public spaces.

5.3.1.1 Origins

Current-day Eastern North Carolina was most likely occupied by Native Americans as long as 14,000 years ago, although physical evidence of human occupation only dates to around 3,000 years ago (USFS 2002). European settlers began to occupy the

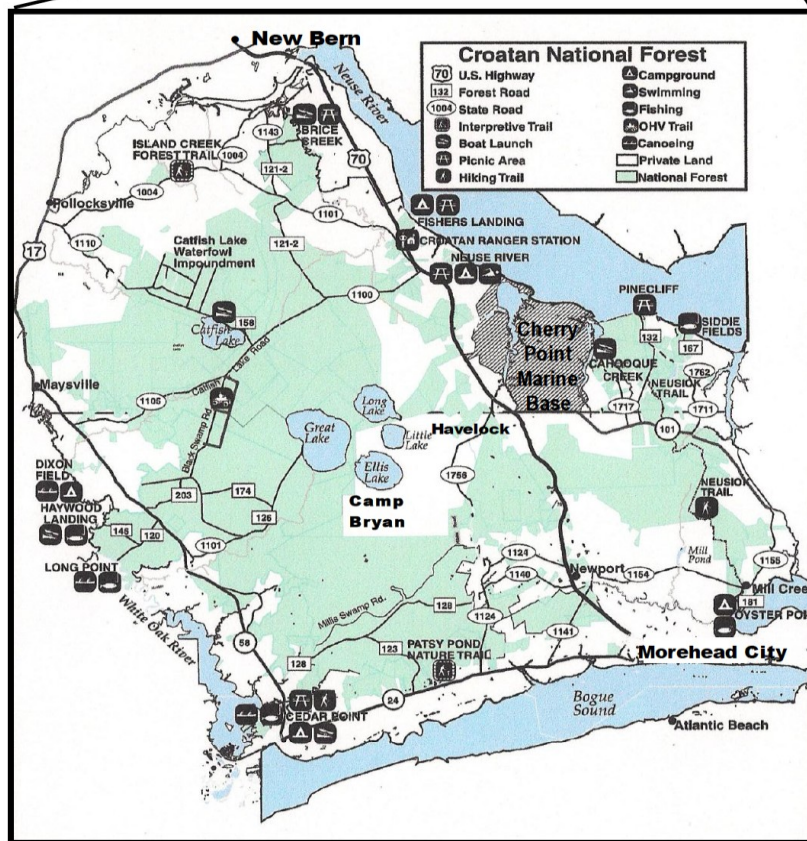


Figure 5.3: Map of the Croatan National Forest (Forest Service lands are shown in pale green, private lands in white, and Defense Department land in cross-hatched dark gray)

area in the 18th century, gradually increasing in numbers and pushing out the native inhabitants. In 1764 there were 40 water-operated sawmills along the Cape Fear River in coastal North Carolina sending timber to Northern states. By one hundred years later, the state's pine forests were being clearcut to produce turpentine, primarily for military use (Frost, 1993).

In the boom years at the start of the 20th century, large areas of coastal North Carolina were cleared for development, agriculture, commercial forestry, and industry, leaving little of the original ecosystem intact. Then, in 1936, President Franklin Roosevelt authorized purchases of 113,000 acres from private landowners, the first pieces of the patchwork that now comprises the Croatan National Forest. These purchases, greatly facilitated by Depression-era foreclosures and bankruptcy proceedings, were allowed under the Weeks and Clark-McNary Acts (see Chapter 4), which encouraged conversion of marginal areas, primarily on the East coast, back to forestland to be added to the National Forest System.

Since then, additional parcels of land have been purchased or swapped, resulting in the Croatan's current total of 161,000 acres. (For comparison, this is one quarter the size of the Siuslaw National Forest and one-tenth the size of the Willamette, but by no means the smallest forest in the system.) As a result of its opportunistic establishment,

the Croatan is interwoven with patches of commercial timber operations, private lands,⁸ urbanized areas, and the 29,000 acre Cherry Point Marine Base, which was built on land transferred from the Croatan Forest during World War II.

5.3.1.2 Landscape

Two facts are essential to understanding the Croatan landscape: The ground is low, reaching only 33 feet above sea-level at its highest; and it is wet, surrounded on three sides by Bogue Sound, the White Oak River, and the Neuse River. As one Forest Service employee told me:

The Croatan is an entirely unique National Forest because ... [it] can almost be circumnavigated on rivers that are tidally influenced. ... The Croatan is not a coastal *plain* National Forest; [it] is a *coastal* National Forest! Our own congressional delegation refers to the Croatan ... as the red-headed stepchild of the National Forests in North Carolina. (FS)

Prior to widespread European occupation, the higher areas (referred to locally as “ridges,” although the word seems inapt to an outsider) consisted of large, open stands of longleaf pine trees, with a dense herbaceous groundcover dominated by wiregrass. These almost park-like habitats were sustained by frequent fires, either sparked by lightning or deliberately started by Native Americans for ease of travel and hunting. As

⁸ One interesting story at the heart of the Croatan is Camp Bryan (see Fig. 5.3). As recounted to me by a long-time resident and Croatan-watcher, “Camp Bryan [is] an old-time private hunting club that dates back probably post-civil war. Principally Kinston people, the upper middle class, the attorneys, the M.D.s, etc. They formed this exclusive hunting club, with a lodge and all this good stuff, and when the Croatan was being formed [in 1936] they just made sure that that chunk of woods did not become part of it. Basically, that’s why it’s still out there, surrounded by the Croatan. [It’s] the play place for the same family descendants.”

recounted to me, local lore claims that “[when] the first Europeans got here ... they could ride down through this country on horseback, riding four abreast. [Now you] can’t hardly get a horse through here in some places. “

The other dominant ecosystem-type was “pocosin,” the Algonquin word for “swamp on a hill.” These are boggy areas with peat soils and very slow drainage. The saturated, nutrient-poor, acidic soil supports dense, shrubby evergreens and scattered Pond pines. This pairing of wet ground and almost impenetrable vegetation makes the pocosin landscape inhospitable to humans but provides excellent habitat for other species.

In the ecotone between the longleaf savannahs and pocosin wetlands, fascinating and unusual species can be found, such as the carnivorous sundew, pitcher plant, and Venus flytrap (the only National Forest where this species is found). Additional habitat types exist in the brackish and saltwater marshes associated with the surrounding rivers. Although these niches are smaller in extent, they contribute greatly to the overall biodiversity of the forest (USFS 2002).

An important feature of the natural Croatan habitat was its adaptation to, and dependence on, fire. One state employee told me, “These ecosystems have evolved through fire. A lot of the species that exist in that type of ecosystem depend on fire to let them flourish.” More specifically, a forest manager explained that:

Fire doesn't get to [the longleaf pine]. It is very, very fire tolerant. It *likes* fire as a matter of fact—has to have a fire to open the cones for the seed to drop ... [and] have some bare soil for it to seed. (FS)

In addition, the characteristic short wiregrass vegetation carries fire along the ground at low temperatures, with little damage to the trees (CCC)

As was so often the case, this connection was not well understood for many decades. Foresters in the late 1800s and early 1900s believed that fire was inherently destructive and should be eradicated: “The burnings of the present and future, if not soon discontinued, will mean the final extinction of the long leaf pine in [North Carolina],” thus, “the people must be educated to a sentiment against fires” (quoted in Frost 1993, p. 35).

Unfortunately, where longleaf pine was replaced by plantations of less fire-resistant loblolly pine, or where a dense woody understory grew up as a result of fire suppression, wildfires could be catastrophic.

Loblolly, when a fire goes through, it just kills it, just burns it up and kills it. (FS)

Years of fire suppression led to some big fires in the '80s that destroyed some really big old trees. (COMM)

The wet pocosin areas were similarly well-adapted to fire. Because the pond pine is long-lived and fire resistant, the trees in pocosin habitats were historically over 100 years old. More recently, due again to decades of fire suppression, flammable vegetation

is building up in the understory, raising concerns that intense wildfires might sweep through, smoldering down into the peat soils and killing entire stands. (NCWRC, 2010)

As was typical in East Coast National Forests, the original landscape had been substantially altered by the time Croatan lands were purchased and they continue to be affected by surrounding agriculture, residential and commercial development, recreation, road-building, and industrial forestry. As recently as the 1970s, large areas of longleaf pine were still being clearcut and transformed into loblolly pine plantations in keeping with typical forestry practice at the time. Out of an original 74 million acres of longleaf pine habitat in the Southeastern U.S., by 1993 there were only ten thousand acres of old growth left (Means, 1996), with an additional 2 million acres of young longleaf areas, many of them almost unrecognizable as a result of active fire suppression (Frost 1993). Some of the wetter areas were drained and filled to create more profitable land. Although pocosins once covered over 2 million acres of the North Carolina coastal plain, the Croatan National Forest and Camp Lejeune Marine Corps Base now harbor most of the few remaining pocosin wetlands in the U.S.

5.3.1.3 Wildlife

As might be expected, the diverse habitats found in the Croatan are home to a wide variety of mammals, birds, fish, and reptiles. Deer, black bear, squirrel, rabbit, raccoon, turkey and quail are all hunted for food and sport. The streams and estuaries harbor dozens of fresh and saltwater fish species, although the lakes are less attractive

for fish because of their high acidity. Salt marshes provide important nursery areas for oysters, shrimp, and crabs. Even the elusive American alligator can be found in the deeper swamps and waterways of the Croatan.

With its numerous water elements, the Croatan is a haven for birdlife. The swampy pocosin habitat provides nesting areas for egrets, herons, woodcocks, owls, osprey and many other species. The forest is also located on the Atlantic Flyway for migratory birds such as ducks and geese. Several species of rare birds have been sighted, including the bald eagle, the peregrine falcon and, perhaps most notably, the endangered red-cockaded woodpecker (RCW).

Because the continued survival of the RCW drives many decisions on the Croatan, its habits and recent history merit a closer look. While other woodpeckers nest in the rotted, softwood of dead trees, the RCW excavates nesting cavities exclusively in living pine trees. The original longleaf pine savannahs were the preferred RCW habitat, although other types of old-growth southern pine also harbored them. For a pine tree to be suitable for RCW nesting, it must be alive, over 75 years old, and in an open stand with little woody understory (USFWS 2003). The range of the RCW once extended throughout the southeastern United States, from Florida to New Jersey and as far west as Oklahoma, but the 20th century saw these birds rendered locally extinct in New Jersey, Maryland, Missouri, Tennessee, and Kentucky.

In 1973, the RCW was declared an endangered species and formal recovery plans were issued in 1979 and 1985. Despite this, almost all monitored populations continued to decline throughout the 1970s and into the 1980s. Following decades of litigation and numerous injunctions against Forest Service logging practices, a RCW recovery plan was finally accepted by the courts in 2003. Although the litigation, initiated in 1985 by the Texas Committee on Natural Resources with backing from the Sierra Club and Wilderness Society, was originally targeted at halting clearcutting on National Forests in Texas, its impacts were felt throughout the range of the RCW. A recreational user of the Croatan forest observed that, "The war over the red cockaded woodpecker might well have been fought here, maybe should have been fought here. ... The upside of that lawsuit was that it changed the management on the Croatan immediately." This observation was echoed by Forest Service staff, with a touch of defensiveness:

The Croatan National Forest was both the cash cow and the workhorse for the National Forests in North Carolina. ... What brought that to a screeching halt was the red cockaded woodpecker recovery. The Croatan was in violation and it wasn't the Croatan's fault ... there was nobody at the Croatan at that time in the '70s and '80s to evaluate effects on endangered species.
(FS)

Despite ongoing recovery efforts, described further below, only 12,500 RCWs remain nationwide, representing about 1% of their original population (USFWS, 2012). In the Croatan, the RCW population has stabilized at around 54 potential breeding

groups in the western part of the forest, much lower than the 101 projected in the 2003 RCW Recovery Plan (USFS 2010).

5.3.1.4 Timber harvest

Starting in the 1920s and continuing through the 1970s, “scientific forestry” (see Chapter 4) dictated that North Carolina’s longleaf forests should be clearcut and then replanted in dense, even-age stands with the faster-growing loblolly pine. These plantations were to be periodically thinned, until they reached optimal commercial size, then clearcut once more to start the process anew. Fires were to be closely monitored and quickly extinguished. This approach to forest management and timber harvest was virtually the same on private and public lands. Timber harvests steadily increased, peaking in the 1970s (Fig. 5.4). Nevertheless, Table 5.3 shows that the late ‘70s peak harvests on the Croatan, even adjusting for its smaller area, did not approach the volume of wood being extracted at that time from the Western forests.

Another difference from Oregon’s forests, although on the surface a matter of simple administrative expedience, had important consequences for the Croatan. Because the four National Forests of North Carolina are relatively small, they are grouped under one Forest Supervisor based in Asheville in the far Western region of the state. Mandates from the Washington office go directly to Asheville, where the four forests are treated as Districts within the Supervisor’s purview. But the Croatan is vastly different from its sister forests in mountainous Western North Carolina which include more classic

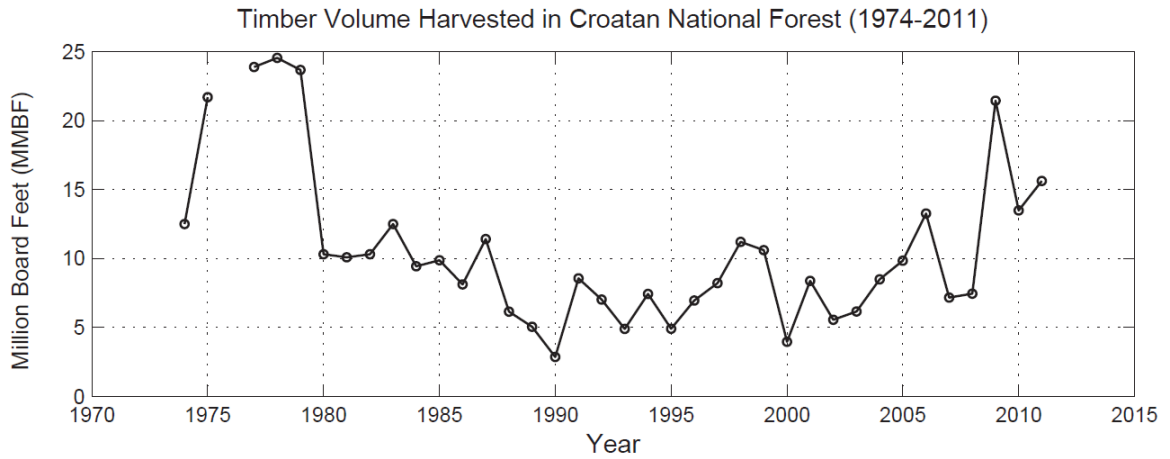


Figure 5.4: Timber harvest on the Croatan National Forest (Annual harvest figures not available prior to 1974)

Table 5.3: Basic facts about the Croatan National Forest (Western Oregon forest data shown for comparison)

	Croatan	<i>Siuslaw</i>	<i>Willamette</i>
Year established	1936	1908	1933
Total area (acres)	160,000	630,000	1,675,000
Highest elevation (ft)	33	4,097	10,495
Wilderness area (acres); (proportion of total area)	31,000 (19%)	16,000 (3%)	381,000 (28%)
1978 timber harvest (MMbf)	25	315	693
1978 harvest intensity (bf per non-wilderness acre)	194	513	536
2008 timber harvest (MMbf)	7	28	31
2008 harvest intensity (bf per non-wilderness acre)	54	46	24
Decrease in harvest, 1978-2008	72%	91%	96%

forested landscapes and attract more recreational users and greater public support.

According to one Croatan community member, “[The Croatan] was, among the National Forests of North Carolina, the stepchild. The headquarters have been in Asheville forever, [the Croatan] was (a) a long way away, and (b) it was swampy, and (c) who cared?”

As a result of its unromantic image—combined with good growing conditions and easy access to rail lines, roads, and a port—the Croatan was identified by the North Carolina Forest Supervisor in Asheville as a production-oriented unit within the statewide context of a multiple-use paradigm. This state of affairs was widely acknowledged.

The mountain ranger districts consistently failed to meet their timber targets, so the Croatan was used historically and exploitatively to meet the [North Carolina] National Forest timber targets. (FS)

[The Croatan] when I first came here was probably a more receipt-dominated forest. A lot of emphasis was put on harvesting timber, converting some of the sites that were once longleaf sites to loblolly. (ST)

If we got an administration in DC who was pro-development, and they wanted to up the commercial timber production out in the National Forests—which is a recurrent thing [that] happens under some administrations—they’d pass it down to the headquarters in Asheville and Asheville would say, “Hey we can cut these steep hillsides and really tick off a bunch of environmentalists and tree huggers, or we [can] just throw the whole cut into the Croatan. Who cares if they cut another acre?” (COMM)

[In the 1970s, the Croatan] had large clear cuts, middle-size clear cuts. They would invite big companies like Weyerhaeuser and Georgia Pacific to bid. (IND)

This last comment leads to another issue that was frequently raised — although with less agreement among respondents — namely, the relative importance of public and private timber to the regional economy.

The Croatan is a nickel and dime operation in terms of timber production. Weyerhaeuser owns ... 550 thousand [acres] ... The whole Croatan is 165, about half in wilderness that can't be touched. So it really does nothing in terms of the regional timber economy, or very little.⁹ (COMM)

A lot of [loggers], a fair amount of their annual income is derived from logging on the National Forest system lands ... We cut that back, we're going to be putting people out of work, just like what happened in the Western forest. It's going to reduce the amount of wood going to the mill ... It has a ripple effect. (FS)

One forest service staff member seemed internally conflicted about the appropriate roles for national and private forests.

My belief is that timber production in the United States should probably be done on private land. I don't think it should come off National Forest land. [pause] Although you *can* take it off National Forest land. We are a land of multiple use. So, if there is a viable option and it's biologically sound and it doesn't harm the environment ... then I don't think there's any reason *not* to take timber off National Forest land. (FS)

⁹ As shown in Table 5.2, only 19% of the Croatan is actually Congressionally-designated wilderness. This speaker was likely referring to the fact that large areas of the Croatan are not available for timber harvest due to unsuitable soil conditions and RCW recovery plans. The mistaken belief that half of the Croatan forest is in "wilderness" was repeated by other interviewees.

The most recent Croatan Forest Plan (USFS, 2003) designates only 26,000 acres (16% of the full 160,000) as “suitable for sustained timber production” and directs that they be managed “for high-quality pine sawtimber ... by maintaining growth and development through intermediate harvests [i.e., periodic thinning].” Predictably, a local logger was less than pleased with these restrictions, while a community member welcomed them:

About in the mid- to early '80s, the big clearcutting stopped. There was a big kibosh: no more clearcutting on the Croatan, none, zero. ... And now everything since the early '80s has been all thinning. ... I'm not for thousand-acre clear cuts or anything of the kind. But I think they could have 20-, 30-, 40-acre clear cuts and it wouldn't hurt a thing in the world and it would help some of those early successional species like quail. ... They've got so much timber here that could be gaining so much more economic value to the community. ... The difference between a National Forest, to me, and a national refuge or a national park is ... the existence of this forest is to put money in the U.S. treasury. (IND)

Gradually we started to see big changes, and some of these changes were morphing out of DC where “ecosystem management” and “biodiversity” that was the big deal. ... Another huge change came when Clinton appointed one of my heroes as Chief of the Forest Service [Jack Ward Thomas, in 1993]. He came in with a different philosophy of what the forest should be like — that they should be *forests* as opposed to fiber production factories. (COMM)

5.3.1.5 Ecosystem restoration

As noted above, a major turning point in management of the Croatan was the need to accelerate recovery of the red-cockaded woodpecker (RCW). The Croatan's 2003 Forest Plan addressed this primarily through a focus on restoration of the longleaf pine ecosystem that had been decimated through fire suppression and dense planting of loblolly pine. The vision for the Croatan, as articulated in the Plan, is to “manage for

healthy natural communities and processes, and provide for human uses and values within the context of sustainability.” It goes on to say that the Croatan “will increasingly be a special place where natural landscapes and natural processes dominate.” Almost ten years later, this vision is deeply ingrained in Forest Service staff:

The overriding ecological thing that we are trying to achieve is longleaf pine restoration. We’re trying to do large-scale ecosystem restoration. ... I believe in that, I think that it’s a good thing. ... [You] can’t always go back to what we had, but it was what was here prior to the Europeans coming here and it was a very efficient, very good ecosystem. It worked well, had a good amount of wildlife, red-cockaded woodpeckers ... The trees were spaced further apart. Timber guys, it drives them nuts if you don’t have a tree every eight foot. (FS)

This change in direction is similar to the situation described previously in the Siuslaw Forest, where the court-supervised recovery of an endangered species led to a complete turnaround in forest management, from optimization of timber removal to restoration of native habitats. As in the Siuslaw, the new restoration focus also allowed for—in fact, required—continued logging. However, managers and observers of the Croatan were dealing with a different physical and social setting, which raised different problems. First of all, the landscape had already been profoundly altered. How could the transition from dense loblolly plantations to longleaf savannahs be accomplished without causing further damage to the ecosystem? Second, the forest is surrounded and interwoven with highways and developed areas. How could the need for frequent fires

to maintain the ecosystem be reconciled with this human presence? These biological and social dilemmas remain central to today's conversation.

Answers to the first question are limited by incomplete and evolving biological understanding. Early restoration efforts focused simply on replacing one kind of tree plantation (the loblolly) with another (the longleaf).

On this National Forest ... eventually we would like to do away with the loblolly pine and put the longleaf pine in there. For the timber industry, longleaf is as good as loblolly. The reason that loblolly [was planted] is 'cause when you stick a seed in the ground, it ... grows fast. Longleaf pine ... takes sometimes 10 or 12 years to get up out of the ground. (FS)

In one stand pointed out by a community member, foresters had clearcut loblolly pines in 2001 and then replanted longleaf pine seedlings in straight, bedded rows, following an agricultural paradigm. That site fared very poorly in subsequent years. Many young trees died and the artificial ridges and furrows were entirely unsuited to the native wiregrass understory and plant communities. A Forest Service survey (USFS 2006) found no rare plant species (such as the Venus flytrap) in that stand, and noted that the site remained highly disturbed. Foresters are now adopting a more holistic approach to restoring the full suite of species, functions, and processes that make up a longleaf pine/pocosin ecosystem, although it is a difficult and uncertain task.

How can you take something where you have mostly large loblolly and *gradually* shift it over to being mostly longleaf without a wholesale clearcut and start from scratch? ... The woodpecker is the driver under the Endangered Species Act. ... If you can [recover] it sooner rather than later with the "wrong" kind of pine trees, but move gradually to the right kind of pine tree, then I'm fine with that. (ENGO)

One essential element of the desired landscape-scale restoration is fire. These forests evolved with fire and fire is necessary to maintain them in a natural state. A state wildlife expert said, “The longleaf pine’s so important to ... the red cockaded woodpecker, but also that whole assemblage of species associated with the longleaf. ... Fire is really important in how you manage that system.” But fire can also be difficult to control, potentially destructive to life and property, and thus feared by surrounding communities.¹⁰ The risk is amplified as more public roads crisscross the area and development expands in and near the forest.

Forest stakeholders were well aware of the delicacy of this issue and every one of them emphasized the value of “fuels reduction” (i.e., elimination of woody mid-story growth through both thinning and regular, controlled burning) to surrounding communities.

If this forest was just left alone, you’d have so much timber dying in here it wouldn’t even be funny. You’d have wildfires like what’s going on in California ... and the timber would be absolutely cooked and then my question would be, who benefited from that? ... There is not nearly the wildfires that there used to be, again because they’re doing good prescribed burning. (IND)

¹⁰ As recently as June 17, 2012, a 200-acre prescribed fire on the Croatan burned out of control, consuming 21,000 acres. Fortunately, there was no damage to people or buildings. The Croatan’s District Ranger told a local news source (www.nbc17.com) that the event did not make him regret doing controlled burns because they are necessary to reduce fuel loads in the forest which can spark even worse fires. (He did not mention the health of the ecosystem or the red-cockaded woodpecker!) However, the vast majority of public comments posted in response to the news story expressed outrage that government agents had knowingly started the fire.

Things have evolved a lot since that time, so we know we want to try to manage fire as much as we can ... to get the habitat benefits out of it and at the same time protect property. ... A good prescribed burning program is the best insurance policy you can have to protect your property from fire. (ST)

With periodic thinning of dense loblolly stands, regular prescribed burning to encourage longleaf pine seedlings, wiregrass groundcover, and RCW nest building, and ongoing monitoring and research, it may be possible to re-establish something akin to the native ecosystem. But is that the right goal? Who should decide? And how will the forest's future be affected by external forces such as urbanization, global security, and climate change? The next section looks at how those involved view some of these challenges.

5.3.2 Issues and challenges

5.3.2.1 Balancing and planning for multiple uses

The Croatan National Forest, like its counterparts around the country, is intended to provide for multiple uses. This particular forest no longer provides fodder for livestock (although it once did), but the Multiple Use Act's other elements, "wood, water, wildlife, and recreation," remain active concerns. MUSY requires Forest Service staff to balance these "in the combination that will best meet the needs of the American people" and they are fully aware of that responsibility:

My job is to ... interpret the policies and direction from the Washington Office, that come down through the Supervisor's office, as to what our

priorities should be. And also ... look at the biological and ecological priorities that we have on an area, as well as the socio-economic, the people, and the politics of an area, and try to combine all that into a program that manages the land in the best interests of the people of the United States who are the owners of the land and ultimately my supervisors and my clientele. (FS)

It's easy to simplify into good guys and bad guys. And then there is the real world. I don't think you can really appreciate that until you have to try to balance your ethics between, and it doesn't matter what it is, whether it's recreation or competitive bass fishing or an endangered plant or a watershed or archeology. Until you've had to balance all that. (FS)

At various times different stakeholders have felt that their priorities were being given short shrift, since the absence of specific guidelines in MUSY gives the agency enormous discretion, and national priorities have shifted over time. Some ENGOs felt that conservation is undervalued, hunters complained that other forms of recreation are given preference, and loggers perceived that environmentalists were dictating policy.

I would love to sit in and be a mouse on the wall in some of [the Croatan] staff meetings ... to see if the timber beasts are still ruling the roost. (COMM)

There is 160-some thousand acres in here, and I think they're actively managing 40-50 thousand for timber. So the environmentalists and the "leave-alone" crowd, they've got three quarters of the forest already! So why not let us manage [i.e., harvest] the other 50 thousand [acres]? (IND)

People need to know that this is not a wildlife refuge. Yes, it has a lot of wildlife on it, but that's not why this place exists. ... It's not just a "park," where we're supposed to leave it alone. (IND)

because in my opinion the forest industry has been too silent for too long. We've let the environmentalists push us around and the general public doesn't see all these benefits. ... Environmentalists didn't build that road, timber built that road that they're gonna ride on and go hunting on. The bird watchers who are gonna

look, or the wildlife ramp that they're gonna use, there was something that happened that paid for that. (IND)

[Forest Service staff] probably are heavier on the recreational side in managing the forest. ... I think hunting *is* a recreational activity, but they kind of separate the activities ... There's a lot of money sometimes earmarked for recreation, but sometimes there's not near as much earmarked for wildlife. When you bring up the point that, "Hunting is recreation. Why can't you use some of these monies to develop ... parking areas for hunters to get off the road, or this, that, or the other?" [They say], "We can't use it for that reason, 'cause it's not recreation." ... If you're kayaking and you have a fishing rod and decide to fish a little bit, are you a paddler or are you a fisherman? ... If you're paddling that kayak and shoot a squirrel going down the creek, what are you? When I'm sitting on a deer stand, if I'm not shooting a deer and I'm looking at a whole bunch of birds, at that time I'm functioning as a bird watcher, not as a hunter. To me, they're all intertwined. (ST)

Some policy analysts believe that widespread discontent—and potential negative consequences on the ground—are inevitable under a multiple-use framework, concluding that single-use mandates for public land would be more efficient and effective (e.g., Curtis 1973; also see additional discussion in Chapter 6). That direction seemed unthinkable to those most familiar with the Croatan, even those who recognized the difficulties of multiple-use management and advocated for greater emphasis on their favorite use.

Single use will never work [on this forest] because we cannot dictate, unless we get a much huger conservation law enforcement organization, where people will go and what they will use. You may tell people "this is for timber only," but they are still gonna walk there and hunt there and fish there. (FS)

I think [those who oppose multiple use], their arguments defy reality. The current National Forest is a prime example of multiple-use—and pretty successful multiple-use! ... As far as I can tell, it's working and we have recreation, we have timber harvest, we have hunting, we have ...

preservation of endangered species. It all happens simultaneously in the little 165 thousand acre postage stamp Croatan. (COMM)

Part of the job of this forest is to have a resource ready and to also provide money for the treasury and then multiple-use, all kinds of water conservation, wildlife conservation. And all that can be happening simultaneously. (IND)

Another controversial aspect of multiple-use management is the role of *planning* in creating a blueprint for project-level decisions, as required under NFMA. Although some form of strategic or operational planning guides virtually every large project, public or private, forest planning has never achieved the clarity originally anticipated, perhaps unrealistically, by NFMA proponents. Among my respondents, comments were approximately evenly divided among the pro- and anti-planning camps, with those outside the forest service often professing ignorance of the topic and reluctant to offer opinions. Typical comments in support of planning recognized its ability to even the playing field:

Without some sort of planning, it's just chaos. Then it becomes whoever has the most money, whoever has the most political clout are the ones that get the things done that they want. (FS)

NFMA was wonderful. It was a gift! It pretty much had the capacity to level the playing field among the resources, including recreation. ... The problem was that nobody knew what a National Forest plan looked like. ... The second round of planning [in '92] was just a much more complete idea of what the public wanted, and the timber harvest associations were in there too, what the NGOs wanted, what the congressional delegation wanted, and what law, regulation, and policy was, and how that could be met and what couldn't be met. (FS)

Comments critical of forest planning emphasized the difficulty of making actions match the plans:

[The Forest Plan] does guide us. Some of the activities and things we do, because it is a legal document. ... But right now, where we are, it probably doesn't guide as much as it should. It's eight-years old. A lot of things have changed in eight years. (FS)

You can manage and plan all you want to, and we've seen this in the National Forest. You can say "Here's what we're gonna do." By golly, it's not going to work without enforcement, without responsibility, you will not get maybe 10%, compliance. (FS)

Inevitably, ad hoc-ism whips long range planning every time. (COMM)

The plan does a pretty good job setting goals, but the Forest Service doesn't know how to get there. [It] doesn't have enough trained biologists to restore the ecosystem cautiously and with a long-term perspective. (COMM)

5.3.2.2 Coordinating multiple authorities

Because of the disconnected nature of the lands that make up the Croatan, and its close proximity to urbanized areas and a major military installation, this forest is particularly reliant on cooperation with other federal, state, local, and private landowners and managers. It is virtually impossible for the Forest Service staff to make a decision that does not affect their neighbors and vice-versa.

Natural resources coordination [took place] primarily through collaboration with all of the local, state, and national agencies. [Also] lots of collaboration through research that we funded or assisted at a number of universities within and outside of North Carolina. ... And of course the ever present support and coordination [with] the Marine Corps and the Navy. ... We coordinated so that [private] harvest would coordinate with the woodpecker [recovery plan]. We did that with prescribed burning as well, and with fire

suppression. ... One of the issues when I came out was to work more actively with state agencies and the congressional delegation. (FS)

When [the Forest Service] has sales and stuff, they run that through the NEPA process, it comes through us, usually we see the scoping document, we have a chance to comment ... If we were going to propose a regulation, we would talk to the National Forest, we would all agree that's what we wanted, and then we would propose it as a rule. ... If the Forest Service said no, we do not want it—I speak for myself and I would think the agency—we would never pursue it. That would not be a very good relationship with your partner. (ST)

Of course, interactions between agencies are rarely simple. Respondents recounted stories of conflicts over military incursions into wilderness areas and widespread concerns about how disputes over road development through and around the forest would be resolved. Pending Department of Transportation plans call for significant expansions of the US 70 highway to bypass urban areas in Havelock, Newport, and Morehead City (see map in Figure 5.1). All the proposed options involve construction on Forest Service land. One community member expressed little confidence in the Forest Service's ability to defend its interests:

If it's a small issue, the forest service just keels over and agrees. Say the county wants some land to build a fire department ... the Forest Service just [says], "Okay, you can have 3 acres or so." The bigger it gets and the more parties get involved, the more cantankerous everybody gets, the more the forest service hems and haws and hopes it all goes away. (COMM)

In fact, even within the walls of the District office, different resource specialists (foresters, ecologists, archaeologists, planners, fire managers, etc.) must overcome the

tensions of competing for staff and budgets and the prejudices of their training to create mutually beneficial solutions. One manager said:

I'm trying to push my people to change, to give me ideas of how to do things differently. Here's our piece of land. You have this piece, you have this silo of information, you have this silo ... My job is to blend all those together so that we're taking this piece of land in one direction. (FS)

Echoing this sentiment, a retired staff member told me:

Integration of uses is a good thing, but it can't work if any one discipline dominates—whether for harvest as in the past, or conservation, or wildlife [for hunters]. By having various disciplines within the Forest Service staff, they can negotiate a balance that doesn't degrade overall forest quality. (FS)

Coordination between private and public landowners may be the most difficult challenge of all. One recent study (Weinberg 2012) documents the challenges of retaining “working forests,” defined by their ability to “provide income, recreational opportunities, and ecosystem services, while maintaining biodiversity,” in the face of growing urbanization. Large areas of eastern North Carolina, once owned by private timber and paper companies, have been sold to investment holding companies (such as tax-favored Timber Investment Management Organizations or Real Estate Investment Trusts). The goal of these entities is to produce returns for investors and increasingly their investment advisors are concluding that development can achieve that end as well or better than commercial forestry. Between 2005 and 2011, over 200,000 acres of forestland in seven Eastern North Carolina counties were sold for development. Although the 2003 Croatan Forest Plan targeted 44,000 acres of private lands as

“desirable for acquisition,” these additions have still not been authorized or funded by Congress.

5.3.2.3 Engaging the public

By now, no forest service manager in the country can have escaped the hard-won lesson that stakeholders must be consulted before decisions are made. “Public engagement” is as much a Forest Service mantra now as “sustainable yield” once was.

I don't think we can actually manage National Forests without [the stakeholders] and maintain objectivity and multiple use. Certainly not in the future where there will be—as there always inevitably is—increased pressure for commodities. Those stakeholders, whether it's a deer hunting club, or the Sierra Club, or a Chamber of Commerce, or individuals, will see the value of the National Forests from whatever their standpoints are. They will help ... perpetuate that use. ... And I'm not talking about just increased timber harvest. ... If it was up to The Wilderness Society, the National Forest wouldn't be harvested at all. The great challenge for line officers and ethical staff officers are to fully integrate those stakeholders into decision making. When you work on forest plans (and forgive me for this), if everybody's pissed off at us, then I guess we did ok. (FS)

But, as explored in Chapter 4 and illustrated in the Oregon case study, public engagement can take many forms, with greater and lesser impact on decisions and greater or lesser satisfaction among participants. The “social analysis” provided in the Croatan Forest Plan identifies three types of community members:

Long-term residents tend to view the [Croatan] as “common” land where they can hunt, fish, and recreate without many restrictions. [To them] timber harvesting and other traditional land uses are accepted practices ... Newcomers view the National Forest as a place for recreation and consider rules and regulations necessary to ensure a quality experience. Timber harvesting, road construction, or other activities that can alter the landscape

... are generally not accepted. The transient segment of the population generally holds fewer strong beliefs about activities on the forest and sees the effects of management in a much shorter timeframe. (USFS 2003)

Although these general characterizations were borne out in my interviews, the differences did not lead to the kinds of bitter clashes experienced in Oregon—nor did they precipitate the experiments in multi-party collaboration seen there. Despite disagreements over specific projects, most agreed that management of the Croatan has generated little overt conflict, let alone legal action,¹¹ and that a lack of broad public interest leads to sparse attendance at public meetings beyond those immediately affected by a proposal.

[When] you start talking wildlife, you're going to get the hunters out there. If you start talking [about] the travel management plan that came out recently, then you get ATV clubs and people on four-wheel drive vehicles. When we start talking travel analysis ... we're going to get those people that believe that their little piece of road, you know their grandfather hunted down that road, and their daddy hunted down that road, and it's now come to them, there's an emotional tie there ... Timber industry at times has input. ... If we made the decision that we're going to reduce [the timber target] or do away with it ... that's going to have an economic effect on the loggers ... on the mills, on the port. (FS)

One of the things I've run across is, this area doesn't have [organized groups]. They don't have the big groups—that Center for Biological Diversity doesn't have an eyeball on the Croatan National Forest, thank goodness. We just don't rise up to that level. ... We wanted to do a "Friends of the Croatan" [group] ... We needed one of the NGOs or an individual to step up and help us but, generally, they were pretty happy with us. There would be

¹¹ No one with whom I spoke could recall any lawsuits against the Croatan National Forests; a May 2012 search of the Westlaw legal database also returned no results.

certain resource issues that somebody would be unhappy with, we made mistakes, but they were pretty happy with us. (FS)

There's generally very little public attention, except about prescribed burns. Maybe a few disputes about mountain bikers, and OHVs [off-highway vehicles] damaging natural areas, and locals dumping trash in the forest. (ENGO)

As a result of this low level of concern, the approach to public engagement remains very traditional: a notice in the local paper, a public meeting, presentation of a Forest Service generated proposal, and time for brief public comments. In reply to questions about whether participants had any experience with more interactive, multi-stakeholder dialogue, this answer from a logger was typical: "No, not at all, never had one, never seen one, never heard of one. That would probably be good. There's an environmentalist, retired guy ... he rides around, he has a small car, and he checks on us when we're logging ... it would be interesting to hear his perspective."

5.3.3 The Future

As in Oregon, all respondents were asked to share their parting thoughts about threats to the forest and what they envisioned as a successful future. The answers revealed marked differences from those heard in the Western forests. On the Croatan, no one, including environmentalists, mentioned logging as the most significant threat and no one, including community members, mentioned collaboration and dialogue as keys to success.

All sectors seemed largely happy with the overall direction being pursued on this forest, namely periodic thinning, prescribed burning, and gradual restoration of the native longleaf/pocosin ecosystem.

[I'd be happy] if we continued simply doing the things we're doing now: kept our cuts the same; take out our loblolly pine; depending on the weather, burn about ten to twenty-five thousand acres a year. [The] red cockaded woodpecker ... if we left it strictly alone at this point, we'd be in twenty years at about where we are right now. ... We're at a stable point, a relatively stable point. (FS)

Loggers would prefer to see more wood removed: "In my perspective, they're doing a great job, they're just not doing enough of it. They could probably do [i.e., cut] twice or three times what they're doing now." Environmentalists might prefer to see less: "Real success would be the conversion all of it to ... a natural system with most of all of the natural processes in place." But the main perceived threats are primarily external:

- falling budgets for prescribed burning, land acquisition, and recreational facilities;
- encroaching development which constrains the ability to burn forest land and puts additional pressure on trails and other facilities;
- further fragmentation caused by new and expanded roads and sales of private forest lands to developers;

- climate change, which was mentioned by several North Carolina respondents, perhaps due to the immediate and obvious impact of sea level rise;
- and, unlike most National Forests, fears of additional land transfers from the National Forest to the military, precipitated by growing security concerns.

The closing comment from one state employee hints at the inevitability of change and the poignancy felt by those who see it coming.

We're a rural landscape here for the most part. ... Just imagine if it was like, oh shoot, Richmond, Virginia! ... When you start cramming people everywhere, that changes everything. You have more nuisance complaints, species can't move like they need to. [If] you add more people, what do you add? You add more roads. ... But development improves the tax base. ... It never will set well with a poor county to tell them they don't need to develop. ... People don't appreciate what they have when they have it. They only appreciate what they don't have after they've lost it. (ST)

Part III: Implications for Ocean Policy

6. Adapting Forest Experiences to the Ocean Context

Part I of this report discussed how public lands and the ocean share similar governance features (Research Question #1). Part II then looked at experiences in the National Forests to see whether any recurring themes or lessons emerged (Research Question #2). Now, in Part III, the spotlight returns to ocean management, particularly whether and how experiences on public land might inform the implementation of marine spatial planning (Research Question #3).

This chapter summarizes the challenges faced by National Forest managers and stakeholders over the last 100 years, reviews how they were addressed over time (as revealed in Chapter 4, and echoed by the case studies in Chapter 5), and suggests how these experiences might translate into lessons for ocean management. The next chapter will apply these findings more specifically to developing plans to implement marine spatial planning in U.S. waters.

6.1 The promise and pitfalls of “lesson drawing”

Before attempting to use forest management as a model for the EEZ, it is worth reviewing the research on what is variously referred to as ‘policy transfer’ (Dolowitz and Marsh 1996), ‘policy learning’ (Bennett and Howlett 1992), ‘lesson-drawing’ (Rose 1991), or ‘institutional transplantation’ (de Jong et al 2002). Each of these terms covers slightly different territory, but all look at the practice of drawing on successful policy efforts in one context—or avoiding unsuccessful ones—to improve policy elsewhere.

The identification of successful programs and best practices is seen as a useful strategy for lowering the real and perceived costs of change, as long as certain caveats are heeded.

Most policy transfer research comes out of the international development field and focuses on trans-national learning; that is, national governments choosing, and sometimes being compelled, to adopt programs employed in other countries. Richard Rose, a leader in this area, begins his oft-cited article (Rose 1991) by stating that: “Every country has problems, and each thinks that its problems are unique to its place and time ... However, problems that are unique to one country ... are abnormal.” Later work by Rose and others (e.g., de Jong et al 2002) demonstrates that the word “country” in the quote above could easily be replaced by “state,” “agency,” “manager,” or, more broadly, “policy setting.” Drawing on his international consulting work, Rose concludes that policy makers are often more comfortable following models adopted elsewhere than relying on theoretical findings, noting that “public officials have little interest in discussing measures that have never been put into effect” (1991, p.5).

Rose (1991, 1993) distinguishes five types of lesson-drawing—copying, emulation, hybridization, synthesis, and inspiration—which involve more or less faithful replications of a single policy model, combinations of multiple models, or purpose-built innovations that draw loosely on existing models. The two central questions in this field are: What constitutes a successful model and under what

circumstances are successes and failures in one time, place, or policy context applicable in a new setting? Drawing on the work of Bennett and Howlett (1992), de Jong (2009), de Jong et al (2002), Evans and Davies (1999), Rose (1991, 1993), and others, it is possible to identify several factors associated with successful policy transfer:

1. The adopting community is sufficiently dissatisfied with the status quo that they are willing to take on the transaction costs associated with change;
2. A sense of familiarity exists between the two settings—due to geographic proximity, shared culture, or institutional parallels;
3. A range of different, but related, policy approaches are available as potential models—a common situation within the “quasi-laboratory of federalism” (Rose 1991);
4. Key actors in the adopting setting (“domestic champions”) are enlisted as supporters; and
5. Models are adapted to the realities of the new setting rather than precisely copied—broad policy lessons and concepts are generally more easily transferable than specific laws or rules. Ironically, overly strong similarities between the source and receiving settings can actually *hinder* transfer if the similarities mask the need for context-specific adaptation. As articulated by de Jong (2009), “cultural features, also known as ‘informal institutions’, are vital to the way in which new lessons will be embedded into existing regulatory frameworks.”

Each of these conditions, to varying extents, can be met in the context of National Forest to EEZ lesson transfer:

1. As documented in Chapter 1, a raft of recent reports and articles have trumpeted the failure of the status quo in ocean policy; vituperative, and seemingly irresolvable, arguments about the impacts of fishing and extended legal controversies over appropriate siting of offshore wind facilities highlight this failure. Thus many in the ocean management community may be primed for change, despite reluctance on the part of Congress and several established user groups.
2. Chapter 3 highlighted a number of similarities between the two ecosystems, cultures, and institutions. That comparison is revisited in the next section, drawing on additional findings from Chapters 4 and 5.
3. The variation in forest policies, over time and between regions, offers a number of potential models;
4. Champions for changes in ocean policy have already stepped forward in government, the private sector, and civil society; and
5. Although sufficient *differences* remain between the settings to negate any temptation to import forest practices wholesale, broad forest policy ideas may be adaptable in the ocean context if local and regional variations are allowed.

All policy transfer analysts emphasize the importance of beginning with a *retrospective* evaluation of the policy to be adopted, conducting a *prospective* evaluation of the likelihood of success in the new setting (i.e., evaluating the technical and political feasibility of the proposed policy in light of existing formal and informal institutions), and then committing to *ongoing* evaluation and adaptation of any new policy. The retrospective analysis in Chapters 4 & 5 looked at the track records of different approaches to National Forest management. This chapter looks ahead to determine whether and how those policies might be translated to the ocean setting, building on the policy frameworks and analytic structure presented in Chapter 3.

6.2 Comparing the U.S. EEZ and National Forests: An expanded analysis

In what meaningful ways are National Forests and the EEZ alike and different? Which elements in these two policy settings are most likely to facilitate or deter lesson-transfer? Table 3.1 first presented a broad comparison of the major institutional features that characterize National Forests and the EEZ, identifying a number of overlapping attributes. In this section, that comparison is expanded, drawing on the more detailed forest history developed in Chapters 4 and 5 and the policy transfer research discussed above, with a focus on that subset of contextual and institutional elements where similarities or differences in the two settings are most likely to significantly affect the prospects for successful policy transfer (Table 6.1).

Table 6.1: Major institutional similarities (plain text) and differences (bold italics) between National Forests and the EEZ. Note: This Table builds on and expands Table 3.1.

System to be Analyzed Framework element	Public land	Ocean
Scope	A U.S. National Forest, plus closely linked human communities and ecosystem components	An ecosystem-based region of the U.S. EEZ (3-200nm from shore), plus closely linked human communities and ecosystem components
Ecological setting	<ul style="list-style-type: none"> • <i>Some animal species can range over long distances</i> • <i>Frequent presence of threatened or endangered species</i> • Threats from habitat modification, overharvesting, invasive species, disease, climate change, <i>and fire</i> • <i>Monitoring and mapping are extensive. Ecological understanding has improved greatly over time</i> 	<ul style="list-style-type: none"> • <i>Higher mobility and connectivity of species</i> • <i>Fewer marine endangered species</i> • Threats from habitat modification, overharvesting, invasive species, disease, and climate change • <i>Monitoring is patchy at best; mapping is limited to coastal areas. Ecological understanding is limited, but growing</i>
Goods and services	<ul style="list-style-type: none"> • Goods: Timber, forage, wildlife, other natural products, fossil fuels, hard rock minerals. Most goods managed by federal agencies but produced by private parties • Combination of natural and human-created services: Non-extractive recreation, water and climate services, renewable energy, transportation (resource-related and thruways), wilderness and existence value 	<ul style="list-style-type: none"> • Goods: Fish, seafood, marine plants, other natural products, fossil fuels, minerals and aggregates. Most goods managed by federal agencies but produced by private parties • Combination of natural and human-created services: Non-extractive recreation, water and climate services, renewable energy, transportation, wilderness and existence value

<p style="text-align: center;">Social setting</p>	<ul style="list-style-type: none"> • <i>Humans live at forest boundaries</i> • <i>Long history of human habitation and use throughout the area</i> • Historically small, resource dependent communities have undergone population growth and economic diversification over time • Variable and complex narratives concerning forest resources and related communities; conflicting conceptions of problems and solutions • <i>Longstanding interest in forest policy among the general public and distant communities</i> • <i>Incentives for collaboration due to agency interdependence, motivated leaders, scientific and policy uncertainties, plus “hurting stalemates” in many locations</i> 	<ul style="list-style-type: none"> • <i>Humans live far from EEZ (>3 nm)</i> • <i>Long history of human uses near the coast, extending further offshore over last 50 years</i> • Ocean-dependent coastal populations increasingly displaced by urban/suburban and tourism-related communities • Variable and complex narratives concerning ocean resources and related communities; conflicting conceptions of problems and solutions • <i>Relatively recent interest in ocean policy among the general public and distant communities</i> • <i>Few direct conflicts and agency independence provide little incentive for collaboration</i>
<p style="text-align: center;">Governance setting</p>	<ul style="list-style-type: none"> • <i>Forest Service has primary authority, but other state and federal agencies have jurisdiction over specific activities, issues, or regulatory requirements</i> • Dozens of independent and overlapping laws in operation • Royalties to nearby jurisdictions based on harvest sales • <i>Explicit multiple-use mandate in law</i> • <i>Privately owned lands often interspersed with federal lands</i> • Long term leases can create complex property claims • Primary venues for influence include the media, courts, elections and lobbying, administrative proceedings, <i>and occasional collaborative settings</i> • Management includes technocratic/regulatory and limited participatory approaches • <i>Major emphasis on area-wide, multiple-use planning</i> 	<ul style="list-style-type: none"> • <i>Sector-specific authorities dispersed among many parallel federal agencies. States have input via “consistency.” Complex rights and international authorities beyond 12 nm</i> • Dozens of independent and overlapping laws and conventions in operation • Royalties to coastal states from oil & gas leasing fees • <i>Unclear statutory mandate for accommodating multiple uses</i> • <i>No private ownership of space within the EEZ</i> • Long term leases and fishing quotas can create complex property claims • Primary venues for influence include the media, courts, elections and lobbying, administrative proceedings, <i>and international bodies</i> • Management primarily technocratic/regulatory with

		<p>limited market-based approaches</p> <ul style="list-style-type: none"> • <i>No area-wide planning in EEZ; 2010 Executive Order calls for multiple use spatial planning</i>
Participants	<ul style="list-style-type: none"> • National, state, and <i>local</i> legislators • State and federal courts • Agency staff • Local and national media • <i>Large, established, and engaged scientific community</i> • Longtime and recent residents, frequently of different socio-economic status • Owners and workers related to forestry, agriculture, recreation (extractive and non-extractive), energy/mineral industries, and many special uses (such as lodges, ski areas, roads, telecommunications) • Environmental NGOs • <i>Collaborative dynamics historically poor but growing, with leadership from agencies and communities, an emphasis on trust-building, shared discovery, joint deliberation, and multi-agency decisionmaking</i> 	<ul style="list-style-type: none"> • National and state legislators; <i>selected international bodies</i> • State and federal courts; <i>international adjudication</i> • Agency staff • Local and national media • <i>Smaller, less activist scientific community, but growing</i> • Longtime and recent coastal residents, frequently of different socio-economic status • Owners and workers related to fishing, aquaculture, recreation (extractive and non-extractive), energy/mineral industries, commercial shipping, and renewable energy • Environmental NGOs • <i>Collaborative dynamics generally poor. Some fishery councils, coastal communities, and regions have demonstrated elements of engagement and shared motivation</i>
Coalitions	<p>Advocates for:</p> <ul style="list-style-type: none"> • commercial timber; • recreational fishing and hunting; • oil & gas extraction • water allocation; • conservation/sustainable use; • wilderness preservation; • market mechanisms and states-rights; • local and state economic development; • <i>traditional native claims</i> • <i>active fire management/suppression (to protect surrounding development)</i> 	<p>Advocates for:</p> <ul style="list-style-type: none"> • commercial fishing; • recreational fishing; • offshore oil extraction • conservation/ sustainable use; • no-take marine reserves; • small government/"freedom of the seas" (anti-regulation); • coastal economic development • <i>national security/military priorities</i>

Ecological setting

- Both locations are home to diverse ecosystems that include both sedentary and highly migratory species. However, species mobility and connectivity are higher in the ocean, making human-drawn boundaries even less meaningful than on land. The frequent invocation of the Endangered Species Act has been a major driver in the Forests that is not as predominant in the ocean setting.¹ Major, regime-changing events can occur in both settings, primarily through fire and disease in the forest and through large-scale fishing, storms, and oceanographic changes in the ocean, as well as via climate change in both settings.
- The remoteness and difficulty of accessing the EEZ has also delayed scientific understanding relative to land-based systems.

Goods and services

- The two settings provide remarkably similar sets of goods and services—commercially-exploitable living resources, renewable and non-renewable energy sources, extractive and non-extractive recreation, and climate control, among others—although the greater accessibility of forests allowed intensive resource exploitation and wide-ranging recreation to be pursued earlier in time.

¹ A number of marine species are endangered, with corresponding plans and litigation aiming to protect them, but these issues have not played a central role in EEZ management as they have in National Forests.

Social setting

- The most obvious difference between land and water is that humans live on the former and only intermittently venture into the latter. Some argue (e.g., Shackeroff et al 2009) that this profoundly affects human attitudes toward and relationships with these two locales. For my study purposes, the difference is less dispositive than it might seem. With rare exceptions,² people do *not* currently live in the National Forests, but rather access the space temporarily for work and recreation and then return to their homes, as they do in the ocean. On the other hand, few people other than scientists and scuba divers are able to truly experience ocean ecosystems and monitor changes in their health in the way any hiker can observe forest conditions. This issue is addressed again in Chapter 6.
- Forest-dependent and coastal communities share many features, including a historic dependence on resource extraction that has shifted over time toward urbanization, recreation, vacation homes, and retirement living, and has led to similar clashes over goals and values.
- Somewhat lower levels of public awareness, political attention, and user-conflict are present in ocean settings relative to the forests, perhaps due to the time lag in

² Some vacation homes built in National Forests have been allowed to remain under grandfathering provisions.

recognizing resource limitations, developing robust scientific and advocacy communities, and achieving widespread access to the ocean.

Governance setting

- Another frequently noted distinction is that National Forests have one primary owner and manager, the Forest Service, charged with balancing multiple-uses throughout the area while more than a dozen ocean agencies manage specific uses or activities throughout the EEZ. Although relevant, this difference is also less significant than it seems. As the case study respondents in Chapter 5 made clear, there are many competing statutes, regulations, and agencies operating within a single Forest, as well as a mosaic of land ownership types, all creating the potential for conflict and requiring cooperation and compromise as in the ocean setting.
- Because of traditional freedom-of-navigation principles (see Chapter 2), the international community and its governance bodies play a larger role in ocean policy. Still, cross-boundary forest issues have often required bi-national cooperation with Canada and Mexico.
- Although both settings experienced shifts over time from open-access, “free-for-all” conditions to well-specified government regulation, these changes took place more recently in the ocean and more ambiguous access and ownership rights persist.

- Management in both venues follows a largely traditional, regulatory model, with occasional experiments into alternatives such as collaboration, community-based management, or market mechanisms.
- Although both areas are seen as public-trust resources (de facto, if not de jure), established traditional uses and the presence of private activities and structures permitted under long-term leases or agreements (e.g., drilling operations, dams, windfarms, cattle grazing, recreational facilities, fishing quotas) create expectations that are hard to reverse.
- Another important difference between the two governance approaches arises as a result of the National Forests' longstanding emphasis on multiple-use, area-wide, prospective planning, an idea which has just recently been introduced, and not yet implemented, in the EEZ.³

Participants & Coalitions

- The main protagonists in the two settings overlap to a great extent, as shown in Table 6.1, including elected officials, agency leaders and professionals, courts, the science community, the media, non-profit advocacy groups, industry associations, and nearby communities.

³ Extensive planning does occur in connection with specific ocean uses, most notably oil and gas extraction and fishing and, to a lesser extent, marine protected areas, but multiple-use ocean planning is in its infancy.

- In both places, disputes arise between individuals and groups with different interests, different values, and different histories. Some recurrent divides occur between economic and environmental interests, individual and corporate interests, locals and “outsiders,” extractive and non-extractive approaches to recreation, and proponents of nature-for-man and nature-for-itself.
- Environmental NGOs are active in both settings, although those advocating for land conservation are generally older, larger, more numerous, and better funded. Two major groups focused on forest issues are the Sierra Club, founded by John Muir in 1892 with an annual budget today of around \$100 million, and The Wilderness Society, founded by John Marshall in 1935 with a budget of \$30 million. The two largest U.S. ocean advocacy groups are the Ocean Conservancy, founded in 1972 with a current budget of \$15 million and Oceana, founded in 2001, also with a budget of around \$15 million.⁴
- The main extractive industries, timber in forests and fishing in the ocean, make similar arguments about their historic roles, economic importance, and ability to achieve sustainable harvest levels. Unlike the commercial fishing industry, which is made up of many widely-dispersed participants with few large players, the timber

⁴ All dates and budget figures are from the organizations’ annual reports and audited financial statements. A study commissioned by The Pew Charitable Trusts, Oak Foundation, Marisla Foundation, Turner Foundation, and Rockefeller Brothers Fund in 1999 (accessed at <http://oceana.org/en/about-us/history> on 7/20/2012) found that less than one-half of one percent of resources spent by environmental groups in the United States went to ocean advocacy, although that number may have increased in the last 13 years.

industry includes both locally-based mom-and-pop operators plus a few very large companies which may give it a larger voice in the political process.

- Another important contrast between participants in the two settings involves their approach to collaborative processes. Many National Forest communities meet the pre-conditions for negotiated agreement described in Chapter 3 (i.e., existence of a “hurting stalemate,” motivated leadership, incentives for participation, uncertainty, and perceived interdependence) and are already implementing many of the process elements associated with success (i.e., trust building, transparency, and development of shared understanding). The case study of the Siuslaw Forest in Oregon in Chapter 5 showed how these conditions enabled collaborative engagement among participants. The ocean community is only beginning to experience many of the pre-conditions for collaboration. There are increasingly intractable conflicts between commercial and recreational fishermen, fishermen and environmentalists, the energy industry and many coastal communities, etc. There is also considerable uncertainty for “new” ocean users looking for permits, such as renewable energy and offshore aquaculture. But elements such as trust and shared understanding among stakeholders remain rare commodities (see Gopnik et al 2012). Several additional points of overlap and difference are highlighted in Table 6.1.

Keeping these comparisons in mind, the next section discusses some of the challenges and tradeoffs that have been experienced by National Forest managers and suggests how they might assist in resolving ongoing ocean management debates.

6.3 National Forest challenges, potential responses, and ocean counterparts

Recalling an article discussed in Chapter 3 (Kidd and Ellis 2011), those authors remind us that “many of MSP's core concepts, assumptions and institutional arrangements have not been subject to rigorous intellectual debate.” Their review of the long-history of theoretical and practical critiques of planning on land raises a number of challenges for MSP, including the following cautions for planners: acknowledge differential impacts on stakeholders due to power differences; look beyond the typical research and agency mix to include facilitation and communication skills on planning teams; keep *implementation* in mind throughout the planning process; pay attention to context and local realities, rejecting standardized models of MSP; and remain conscious of the potential implications of MSP for the conceptualization of ownership, control, and voice in ocean management. Many of these lessons are echoed in the findings below.

6.3.1 The multiple-use mandate and its shortcomings

As discussed in detail in Chapter 4, the multiple-use approach has been a part of Forest Service practice since its earliest days, with all five major uses (wood, water, wildlife, range, and recreation) in operation as early as 1916. Forest Service leaders and managers at all levels accepted and promoted the idea that their mission required “the

management of ... the national forests so that they are utilized in the combination that will best meet the needs of the American people," although those words were not codified until 1960 when Congress passed the Multiple Use Sustained Yield Act (MUSY) at the urging of the Forest Service. MUSY called for "harmonious and coordinated management ... with consideration being given to the relative values of the various resources and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output." Multiple-use management has been central to the training, values, and culture of the Forest Service ever since (Wilkinson and Anderson 1987; interviews in Chapter 5) and has been reinforced by Congress and the courts over time as the guiding principle for National Forest management. Where Congress wished to exclude multiple-uses, they did so explicitly, for example in creating National Parks or Wilderness Areas.

Many participants and observers have endorsed the multiple-use approach (e.g., Hall 1963, Martin 1969, Fedkiw 1999). MacCleery (1992) finds that multiple-use "(1) provides administrative flexibility to shift management over time in response to changing public demands and preferences on public lands; and (2) sets the stage for significant debates over preferred use, especially as competing demands become intense." However, the underlying assumption that impartial natural resource professionals will be able to implement a range of complementary uses on public land,

based on objective analyses of sound data and science, in a way that maximizes public welfare, remains on shaky ground (Mortimer 2002).

Impediments to such a rosy scenario have been traced to many sources. Some relate to attributes of nature, such as finite resources and ecosystem complexity. Others are a function of institutional characteristics: imprecise, complex, and conflicting laws; complex, multi-level governance; short time horizons associated with electoral politics; the adversarial structure of the U.S. legal system; and incentives for advocates to advance extreme positions in anticipation of later compromise. Still others are the result of human cognitive and behavioral traits such as high discount rates, focus on self- or small group interest, limited knowledge and understanding, adherence to simplified narratives in the face of complex problems (e.g., “owls” vs. “jobs”), and other ‘predictably irrational’ (Ariely 2008) behaviors. But at the heart of much of the criticism of multiple-use management are fundamental disagreements about appropriate forest goals (ecological, economic, and social) and the appropriate locus for decision-making (McKinney and Harman 2004).

A number of well-reasoned critiques, written by academics, lawyers, advocates, and foresters, have been leveled against the multiple-use paradigm for National Forests. Shortly after passage of MUSY, Zivnuska (1961) summarized many of its potential problems—the difficulty of comparing economic and non-economic uses, the impacts of lobbying on decisions, the pressure of Congressional budget targets, local vs. national

values, etc.—but concluded that the professional forester “through education and experience is qualified to judge the complex interactions of ... the several uses of forests and wild lands and is aware of the various values resulting from management,” and thus “has a more valid base for contributing to management decisions than any individual or group.” Others have been less convinced that foresters possess such Solomonic skills (e.g., Curtis 1973, Mortimer 2002).

In some circumstances, the goal of balancing conflicting uses will simply be unachievable: “Many resource uses are truly incompatible ... It is impossible ... to enjoy a wilderness experience in the middle of a forest clear-cut. An agency can “balance” these ... uses only by distributing them across space” (Eagle 2006). Instead, many analysts have suggested the creation of single-use or dominant-use zones like National Parks to help minimize conflicts. Writing in 1967, Behan concluded that multiple-use had become a buzzword and a panacea, admonishing Forest Service staff to take greater advantage of MUSY’s acknowledgement that “some land will be used for less than all of the resources.” This view was echoed and strengthened in two related documents, a 1970 report from the Public Land Law Review Commission (U.S. PLLRC 1970) and a 1973 article in *The Yale Law Journal* (Curtis 1973), both of which call for dominant-use zones to be created on public lands: “Management of public lands should recognize the highest and best use of particular areas of land as dominant over other authorized uses” (U.S. PLLRC 1970). The main difference between the two publications is that the

Commission urges *Congress* to establish priorities among uses and set guidelines for choosing amongst them, leaving the *Forest Service* to establish the zones, while Yale Law would assign the zoning process directly to Congress, which they assert would ensure “full representation of all users and interests regardless of their location,” revealing a faith in Congress’s impartiality that rivals Zivnuska’s faith in the wisdom of foresters.

Like a National Forest, the EEZ is a fundamentally multiple-use space.⁵ Although the governing structure in the ocean is different than on land—with most agencies managing specific uses throughout the EEZ rather than coordinating many uses within a specific area—debates about priorities and interactions among uses are still central. A recent group of articles (Eagle 2006, 2008; Eagle and Kuker 2010; Sanchirico et al 2010) extends the public lands debate discussed above into the ocean. Starting with the acknowledgment that the EEZ is a multiple-use space, they then analyze how different possible governance approaches might address associated problems, coming down in favor of a single- or dominant-use approach.

A 2010 Presidential Executive Order (analyzed in detail in Chapter 7) also addresses the multiple-use challenge in federal waters, calling on all ocean-related agencies to work together to develop regional plans that “enable a more integrated, comprehensive, ecosystem-based, flexible, and proactive approach to planning and

⁵ Both settings include some Presidential, agency, or Congressionally-approved limited-use areas—such as wilderness in forests and marine sanctuaries in the ocean—but they constitute a small percent of the total area and have not resolved the broader spatial conflicts.

managing *sustainable multiple uses* across sectors and improve the conservation of the ocean, our coasts, and the Great Lakes” (emphasis added). The Order goes on to state that the planning effort should “identify areas most suitable for various types or classes of activities in order to reduce conflicts among uses, reduce environmental impacts, facilitate compatible uses, and preserve critical ecosystem services to meet economic, environmental, security, and social objectives.” (Executive Order #13547, 2010) Like MUSY, this guidance is inspiring, ambitious, and quite vague.

In light of the current divisive political climate, and considering the massive government reorganization that would be required to establish single-use zones and corresponding agencies, it seems most likely that the EEZ will continue to be managed as a multiple-use space for the foreseeable future. If that is true, how can the downsides of that approach be minimized?

6.3.2 Recognizing tradeoffs and accepting ambiguity

What, if anything, have we learned about balancing multiple uses on public space, and what options might be available for the future? In 1905, Gifford Pinchot, first Chief of the U.S. Forest Service, drafted a letter for his new boss, the Secretary of Agriculture (Behan 1967), in which he wrote that, “where conflicting interests must be reconciled, the question will always be decided from the standpoint of the greatest good

of the greatest number in the long run.”⁶ His inclusion of the words “in the long run” foreshadowed modern-day calls for sustainable resource management but, in both time periods, the question remains: sustainability *of* what and *for* what purpose (Gale and Cordray 1994)? Generations of Forest Supervisors have striven to implement Pinchot’s vision by implicitly or explicitly answering these questions, while outside participants applauded, excoriated, and second-guessed their efforts.

The previous section discussed why multiple-use management, built on the presumption of equal priorities for all permitted uses, cannot please everyone or meet all potential criteria for success including economic and administrative efficiency, equity, accountability, and adaptability, not to mention reaching desired policy outcomes (Imperial 2005). As concluded by the U.S. Commission on Ocean Policy (2004), “in any system with multiple competing objectives, it will not be possible to meet every one.” Tradeoffs must be made and these tradeoffs will require value judgments. The question then arises as to *how* choices will be made, and by *whom*.

In the next three sections, the different axes along which choices must be made are explored: (1) Scale—from national to local; (2) Decision-making *process*—from electoral politics to local collaboration; and (3) Uniformity of approach—from harmonization to flexibility.

⁶Pinchot was borrowing from the utilitarian philosopher Jeremy Bentham who said that: “It is the greatest good to the greatest number of people that is the foundation of morals and legislation.” Bentham, 1789. *The Principles of Morals and Legislation*.

6.3.2.1 National, regional, state, or local focus

Selecting an appropriate scale for policy attention involves both ecological and institutional considerations. In forests and in the ocean, important *ecosystem processes* take place at scales from organismal to planetary. Likewise, the *institutions* that affect these spaces range from informal interactions among neighbors to global, inter-governmental treaties. Different analysts have made forceful, often mutually contradictory, arguments for and against control at various levels, but all agree that choices will need to be made: “thorny issues ... do not get any easier through delay or by forcing local managers to attempt to resolve national controversies” (Dombeck et al 2003).

The fact that National Forests are under federal ownership creates “a *perceived* right and interest among all citizens on how these lands should be managed” (MacCleery 1992; emphasis added), namely, a presumption of pre-eminent federal control, accompanied by a large body of federal law, an assortment of responsible federal agencies, and a “forest policy-making structure heavily concentrated in Washington.” A similar picture can be drawn of the current state of ocean management in the EEZ. Those in favor of national level policymaking argue that it ensures greater

consistency, better expresses national values (to the extent they can be discerned), and prevents parochial concerns from influencing the use of public-trust resources.⁷

This is not to say that the federal focus has gone unchallenged in either setting. Western states have never been happy with the preponderance of federally-controlled lands within their borders. As an extension of the so-called “Sagebrush Rebellion,”⁸ advocacy groups and elected officials annually promote national legislation calling for the return of federal land to the states (O’Toole 1997). More measured analysts have identified potential advantages to this idea, based on the value of decentralization in promoting diversity and innovation (Nelson 1996). Federal forest management does accord a special status to surrounding jurisdictions, giving local governments opportunities to review forest plans for consistency with their own land-use plans (Brick and Cawley 1996).

With respect to ocean management, state and federal roles in the EEZ have been negotiated through similar “consistency” provisions in the Coastal Zone Management Act (USCOP 2004), with periodic dissatisfaction on both sides (Salcido 2007). Since

⁷ This phrase is used here based on its common understanding, not as a legal term. For more in-depth discussion of the public trust doctrine as it applies to public lands see Wilkinson (1981) and as it applies to the EEZ, Turnipseed et al (2010).

⁸ The Sagebrush Rebellion refers to a movement started in the 1960s in the Western United States which sought to have federally-owned lands returned to the states. The "Sagebrush Rebellion" bill, passed in the 1979 Nevada Legislature with similar versions passed in other Western states, was designed to create a process for state control of lands within their boundaries, in hopes of such a transfer being authorized at the national level. The movement reflected a feeling that federal land policies were catering to a national audience while ignoring Western concerns. (McKinney and Harmon 2004, Brick and Cawley 1996)

virtually all activities in the EEZ must be mediated through a coastal port, processing plant, or other transfer station, and the environmental impacts of offshore pursuits will be felt along the shoreline, this relationship continues to be tested. States and multi-state regions have already been given strong roles in fisheries through the Regional Fishery Management Councils, have taken the lead in promoting offshore renewable energy, and are central players in the Regional Planning Bodies being convened under the new National Ocean Policy discussed in Chapter 7.

The U.S. courts have played a major role in partitioning public land responsibilities between federal and state authorities, as discussed by Leshy (1987) and Salcido (2007), but both authors conclude that greater *cooperation* between state and federal regulators, particularly from the earliest stages of the forest planning process, would be preferable to the minutely-parsed outcomes of continued legal battles. Salcido extends this conclusion to the ocean context, urging the ocean community to work together in blurring, rather than reinforcing, the boundaries between state and federal waters and decisions.

A large body of theoretical and case study-based research, combined with the work of many active practitioners, makes a case for strong *local* participation as key to guiding public land management (e.g., Wondolleck and Yaffee 2000, 2003; Kemmis and McKinney 2011; Marshall 2005; Beierle and Cayford 2002; and many more). Not

surprisingly, many of the community members interviewed and quoted in Chapter 5 also expressed a preference for more local control.

Arguments in favor of this position range from those based on the foundations of American democracy – for example, Kemmis and McKinney (2011) look to the writings of 18th century philosophers such as Montesquieu and U.S. constitutional framers Hamilton and Madison for support – to those based on personal involvement in successful locally-led efforts over the last two decades (e.g., Gray et al 2000; Wondolleck and Yaffee 2000; also see the Pacific Northwest case studies in Chapter 5). Supporters contend that cross-sectoral, community-level engagement, with local leadership, can transcend seemingly intractable disputes by: (1) building trust among those with shared connections to a particular place; (2) allowing community-based collective action to experiment with new approaches (such as restoration forestry); and (3) fostering seemingly small agreements that can contribute to a virtuous cycle of success. Although few of these authors appear to recognize it, many of their conclusions echo research findings from the wider fields of game theory and institutional analysis (e.g., Ostrom et al 1994, Ostrom 2005).

Opponents of local control reply that such an approach excludes distant citizens who may have equally strong feelings and deserve an equal voice as co-beneficiaries of the public trust. Coggins (1999) states this unequivocally: “When the subject is every American’s natural heritage, devolved local collaborationism is entirely inappropriate,”

and makes a legal case for why it should not be allowed.⁹ Many national environmental advocates—vocal critics of giving communities a primary role in national forest management—believe that local residents will neither understand nor care sufficiently about ecosystem protection and will be willing to sacrifice environmental protection for local economic gain (e.g., McClosky 1999).

To date, local coastal communities have not had a strong say in management of the EEZ although recent work by St. Martin and Hall-Arber (2008), which documents and maps the connections between specific fishing ports and distinct offshore areas, may help policymakers recognize the importance of local perspectives to ocean planning.

A thoughtful paper by Kagan (1999) reviews the many pros and cons of implementing environmental protection at different levels of government, including comparisons to outcomes in other federalist systems abroad. He concludes that intractable disagreements persist in the U.S. to a greater degree than elsewhere because “interest groups and politicians—and perhaps the electorate at large—want to have it both ways.” He goes on: “They prize local democracy [and] want to allow local and state governments discretion to make difficult tradeoffs,” but do not necessarily trust these decision-makers to protect broader national values. Kagan’s solution is to rely on the legal system to arbitrate disputes between local, state, and federal goals, shifting the

⁹ Coggins makes two rather inflammatory claims to support his main point, proposing that: “Federal bureaucrats are enthusiastic about [local collaboration] because it is an all-purpose method of passing the buck on difficult and controversial allocations issues” and asserting that “the theoretical ... premises underlying local superiority are false or unproven.” Both of these statements are debatable.

debate from being about the appropriate *scale* of decision-making to the appropriate *manner* of decision-making, a different set of tradeoffs.

6.3.2.2 Political, technocratic, judicial, or participatory decisions

The U.S. Constitution and its subsequent 225 years of accreted interpretation allow for a number of different bodies, operating under different mandates, to make overlapping and even contradictory decisions. Over time, strong claims have been made in favor of each as being the best venue for making management decisions regarding public space and resources. Some point to elected officials as the true representatives of citizens' interests (e.g., Yale Law Journal 1973, Mortimer 2002). Some put their faith in a combination of scientists and agency professional staff as the most impartial and objective decision-makers (e.g., Pinchot 1947 and his philosophical followers). Others—generally lawyers—favor a more central role for the courts in interpreting often-ambiguous statutory language and steering presumptively-partial agency leaders (e.g., Coggins 1981). A more recent, but growing, cadre of participants and scholars promote the value of place-based collaborative decision-making, which emphasizes broad citizen participation, facilitated dialogue, and a preference for compromise (e.g., Wondolleck and Yaffee 2000). This section looks briefly at each of these decision-making options in the forest and ocean contexts.

Political decision-making: Because multiple-use management requires difficult, values-based choices to be made, many have suggested that elected officials must take

the lead (e.g., Bryner 1998, Mortimer 2002, Nie 2008). According to Nie, laws should express clear policy choices and specify desired outcomes, to then be implemented by agencies. Coggins (1981) goes so far as to accuse legislators of “embracing the multiple-use philosophy in part because it enabled them to avoid the inevitable, and politically volatile, hard choices.” Howard Zahniser, a high-profile environmental advocate in the 1950s and ‘60s who played a major role in advancing the Wilderness Act, explained that enacting legislation is a huge undertaking, “not because it goes so far, but because it must be taken by so many. A whole nation steps forward with ... such legislation, and it marches only when so many are ready to go that the others must move too. Nor in our great government do we disregard the reluctant ones. Rather, we persuade, we confer, we try to understand, we cooperate” (Zahniser 1961). It is hard to imagine that Zahniser would observe the same level of comity today; nevertheless, because of the hurdles he cites, laws in the U.S. have generally been more stable, and accepted as having greater legitimacy, than agency regulations.

Since the 1960s, environmental advocates have often looked to Congress as a better champion for non-economic goals on public lands, such as wilderness preservation and ecosystem services, believing that economic interests would continue to dominate any agency-led multiple-use process. This perspective is central to Eagle’s calls (2006, 2008) for Congressional designation of single or dominant use zones in the ocean whereby some areas could be dedicated to marine ecosystem protection. With

respect to fisheries management in particular, a 2002 study from the National Academy of Public Administration finds that, “NMFS’ ability to reconcile [its] varied mandates—to conserve fisheries, preserve protected species, protect the environment, promote U.S. economic interests, encourage recreational fishing, and address socio-economic issues—would be enhanced if Congress were to clarify their relative priority ... Congress—with help from the Administration, states, and parties representing the environment, conservation, and U.S. commercial and recreational fishing— should begin to discuss U.S. fisheries objectives and priorities with a view toward providing legislative guidance.” (NAPA 2002)

Elected officials can also influence policy through tools other than legislation. By setting agency appropriations, often with attached policy-related riders, Congress has exerted a major influence over natural resource policies. For example, each Forest plan, created by Forest Supervisors pursuant to NFMA regulations, must specify the maximum quantity of timber to be sold during the plan period. However, that target can be, and frequently has been, overridden by higher timber sale levels mandated in Congressional appropriations. In the ocean setting, text attached to the 2012 NOAA budget appropriation precluded that agency from spending any funds on implementation of the new National Ocean Policy, established the previous year by Executive Order.

Of course, Presidents are also elected officials, although they cannot create new laws without cooperation from Congress. They can however represent their constituents (i.e., exert political power) in other ways, for example through executive and judicial appointments, Executive Orders, and influence within the Office of Management and Budget (Davis 2001). One presidential prerogative that has been used to protect natural resources on land and in the ocean is the creation of National Monuments, authorized by Congress in 1906. Recent designations have created extensive protected areas on land and in the ocean, over the objections of resource users and some members of Congress.¹⁰

Technocratic decisionmaking: Progressive conservationists dominated forest management from the start of the 20th century, spearheaded by Gifford Pinchot. Their faith in the value of science, professionalism, and rational decisionmaking provided a welcome contrast to the previous era's combination of "first in time, first in right" land grabs and the influence of a small number of wealthy landowners and industrialists on politics (McKinney and Harmon 2004). The impartial, efficient, forward-looking management they envisioned would be housed in newly established professional agencies such as the Forest Service, the Bureau of Reclamation, and the Park Service. An

¹⁰ Motivated by rapid loss of archaeological sites in the West, the Antiquities Act of 1906 authorized presidents to proclaim "historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest" as National Monuments, "the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected." Presidents have greatly stretched the original intent of the Act, protecting large natural areas on land and in the ocean, with periodic backlash from the public and Congress, including special exemptions from the Antiquities Act for lands in Wyoming and Alaska (Davis 2001).

important component of the progressive approach was their reliance on *planning*, based on estimates of forest growth and timber demand, calculations of sustainable harvest levels, and forecasts of demand from recreational hunters, hikers, and tourists.

For decades this approach was accepted and applauded. Marshall (1933) found that “the U.S. Forest Service does an excellent, scientific job.” In his treatise on “The Forest Ranger,” Kaufman (1960) also praises the organizational cohesion, respect, and success of the Forest Service. But Kaufman also predicted that an organization as smoothly functioning, unified, and well-adapted to its environment as the Forest Service might have difficulties navigating social change—social change that was just around the corner.

In support of the pre-eminent role of foresters, Zivnuska (1963) comments that, “forestry involves the management of forests and related wild lands for *the various ends of society*” (emphasis added), a goal he believed could be best achieved by trained professionals. Three years later, Behan (1966) responds that, “when the professional forester arbitrarily determines those ends [of society] ... he most seriously violates ... our democratic politics. ... ‘Goodness’ and ‘badness’ in our society are collective value judgments and land expertise is no better a qualification than many others for making them.”

When competing groups possess unequal power and agencies are given considerable discretion, they become susceptible to charges of “capture,” in other words,

inappropriate bias in favor of particular interests.¹¹ The Forest Service has been accused of capture by the timber industry, the Minerals Management Service (recently renamed the Bureau of Ocean Energy Management) of capture by the oil industry, and the National Marine Fisheries Service of capture by the fishing industry. However, except in cases of actual illegal activity, it can be very difficult to distinguish between *capture*—an agency ignoring its public obligations in order to favor its friends—and *judgment*, whereby an agency makes legitimate choices within a multiple-use context in response to a wide range of constituent voices. DeShazo and Freeman (2005) state flatly that there is almost no evidence of significant agency capture. One author—who levels plenty of criticism at the Forest Service—concludes on this question that foresters were “responding in variable and locally appropriate ways to heterogeneous communities” (Coggins 1981, p. 242). He goes on to note that: “Timber companies ... were staunch supporters of [multiple-use management] as it was practiced. But as the agencies have begun to give higher priority to formerly ignored values ... their enthusiasm has waned ... More recently, conservationists, environmentalists, and preservationists have used ... multiple-use planning mechanisms to ... [shift priorities toward] noneconomic resources. To the extent they succeed ... they are becoming proponents.” Most agency staff, including all those interviewed for this study, vociferously defend their choices as

¹¹ The concept of agency capture was originally developed by Bernstein (1955) but is discussed extensively in the context of public lands by Culhane (1981), Feller (1995), David (2001), Nie (2008), and others.

reflecting the direction provided by Congress and the public—either directly or through elected representatives—at a given time.¹² Assuming this is true, it highlights one of the drawbacks to agency discretion: professional staff members may become insulated from politics and public discourse, be slow to perceive changes in public opinion over time, and thus unable to adapt their practices accordingly.

Through the 1970s and '80s many observers continued to believe that land agencies could make multiple-use work if only they had more data, better analytic methods, and new decision tools to calculate the optimum mix of uses. The task, according to some, could be boiled down to “evaluating the costs and benefits from alternative decisions” (Hall 1963).¹³ The 1970 Public Land Law Review Commission also recommended improved analytical tools (U.S. PLLRC 1970), and two new laws from that time, NEPA (1970) and NFMA (1976), exhorted agencies to rely on the latest physical, biological, economic and other scientific information in their planning and decision-making (Applegate 1977). To put these trends in context, this was also the era of the space race, the first mainframe computers, futuristic pavilions at the New York World’s Fair, the War on Poverty, and major U.S. investments—and faith—in the power of science and engineering to change society.

¹² Problems arise when significant parts of the public are unaware of ongoing decisions and/or have little access to agencies and politicians.

¹³ Describing a 1956 controversy that ended in cancellation of a proposed dam in Echo Park, Colorado, Hall (1963) concludes that the disagreement was resolved thanks to improved scientific analysis. Reviewing the same events in his history of wilderness activism, Scott (2001) attributes the same outcome to successful grassroots lobbying.

The Forest Service developed a sophisticated computer program called FORPLAN (a clever mash-up of FORTRAN, the computer program it is based on, and Forest Planning) to handle its new duties under NFMA. A 1986 evaluation of FORPLAN describes it as a computer-based method of “using linear programming to simultaneously determine the land allocations and activity schedules that maximize present net value subject to such other goals as might be prescribed by the constraints,” and which “embodies procedures for analyzing the economic efficiency and environmental consequences of alternative forest plans” (Teeguarden 1986). After explaining the embedded assumptions and operator choices needed to make such a program produce meaningful results, Teeguarden praises Congress for leaving plenty of leeway for the agency to “exercise professional judgment to separate applications of benefit-cost analysis that are reasonable and valid from those that are not,” fodder for those who question just how “scientific” these approaches are. Forest planners, operations research experts, and computer programmers continued to tweak and refine the FORPLAN model and its application (see e.g., USFS 1987, Kent et al 1991), but changing views of science and society led others to question the omnipotence—or even competence— of the technocracy: “Untrammelled expertise has had its day, and it did not work” (Coggins and Evans 1981).

By the late 1980s, many forest scientists were rejecting simplified linear models of forest growth in favor of concepts such as ecosystem complexity, uncertainty,

adaptability, and resilience, all of which were difficult to quantify and model. The prospect of including even less well understood factors, such as economic, sociological, and cultural impacts, where data are limited and forecasts notoriously unreliable (Justus et al 2009), raised the bar even higher. But the progressive movement really began to lose its legitimacy as the public realized there simply is no such thing as an “optimal solution,” just different possible balances between varied, and often divergent, interests (Yaffee and Wondolleck 2003).

Ocean managers went through similar phases of reliance on science to guide decisions, focused first on quantitative modeling, followed by broader attention to ecosystem concerns. Once again, these stages lagged behind those on the land by years or decades. Starting with the Stratton Commission’s exhortations to increase U.S. exploitation of offshore fisheries resources (CMSE 1969), stock assessment scientists have been at the heart of NOAA’s effort to achieve maximum sustainable yields. Reports from the National Research Council (e.g., NRC 1994, 1998, 1999, 2000) are filled with advice for refining and improving stock assessments. In one study, the NRC concluded that “a substantial fraction of the litigation that NMFS faces is a consequence of real or perceived deficiencies in data or science” (NRC 2002a). More recently, marine ecologists

have been called on to identify essential fish habitat¹⁴ and provide technical support for broad ecosystem-based management (NRC 2001, 2002b, 2004).

However, like MUSY for the Forests, MSFCMA leaves room for the Regional Councils to consider economic and social goals, with similar fights over the results. The Ocean Commission (USCOP 2004) finds that “accurate, reliable science is critical to the successful management of fisheries,” and then goes on to decry the fact that “social, economic, and political considerations have often led the Councils to downplay the best available scientific information,” implying that “science” cannot inform these other concerns. Other reports have stressed the importance of social and economic analyses for marine fisheries management (NRC 2002b).

No one questions that scientific analyses, forecasting, and planning remain necessary components of any strategy for managing public space and resources. One eloquent statement concerning the National Forests could apply just as well to the EEZ: “The public wants beauty, recreation, and wildlife, ... we have reached a national commitment to preserve endangered and threatened species, ... [and] the public also wants [commercial products] from these same [areas] ... How can we possibly address issues of that magnitude, and achieve an acceptable mix of all the many commodity and non-commodity values, without extensive planning?” (Wilkinson 1997) Recent calls for

¹⁴ Defined in the MSFCMA as “those waters necessary to fish for spawning, breeding, or growth to maturity.”

marine spatial planning (discussed in Chapter 1) make much the same argument. But the era of primary reliance on agency decisions based on “objective” analyses has waned. “Scientific research can define the biological and physical decision space for ecosystem decisionmaking, but it cannot determine decisions that must also reflect the values of society, its interests groups, landowners, and managers” (Fedkiw 1999).

Judicial decisionmaking: In the U.S. system, the federal courts play an important role in resolving conflicts by interpreting often unclear statutory language and applying fundamental constitutional principles, thereby creating a widely-accepted body of law. But judges are also people, with personal histories, perspectives, and political allegiances that inform their analyses. Clever lawyers and advocates proudly practice “venue shopping” to identify courts most likely to be receptive to their positions (Scott 2001). The history of litigation in National Forest and ocean management has been amply documented and analyzed (e.g., Wilkinson and Anderson 1987, Wilkinson 1997; Bryner 1998; Baur et al 2008; NAPA 2002; USCOP 2004b). A few of the findings from these studies and others are worth highlighting in the context of tradeoffs between different approaches to decision-making.

Proponents of the legal approach, often attorneys and law professors (e.g., Coggins 1981, Kagan 1999, Davis 2001), point to a number of benefits in relying on courts to resolve conflicts over public resource management, including arguments that:

1. At the end of a full round of court proceedings and appeals, an issue is resolved in a fairly durable way;
2. As secure, lifetime appointees, federal judges may be more independent and objective than elected officials or agency staff; and
3. Courts can consider the validity of both the *process* and *outcomes* of agency decision-making, either of which may be at the heart of a dispute.

Coggins (1981) believes that forest ecosystems would be better protected if courts were *more* willing to review agency discretionary decisions, decisions that he presumes to be overly influenced by industry. In the ocean setting, Sanchirico (2010) and Eagle and Kuker (2010) also look to the relatively well-defined and orderly processes associated with property-rights and the legal system as a more definitive way to resolve marine use conflicts than is possible under the current system.

But there are also many downsides to relying on the courts: delays of months, years, and even decades in reaching a decision; significant costs, which disadvantage individual or small group interests; and a focus on adversarial interactions and win-lose outcomes that can poison the atmosphere for later compromise. As Yaffee and Wondolleck (2003) remind us, the legal system may work well for dispute resolution, but not for relationship building.

Kagan (1999) acknowledges those critiques, but finds that “hyperpluralism and high legal transaction costs are better than too little pluralism and too little

responsiveness to environmental concerns ... That is the substantial price Americans pay for a brand of federalism that tries to guarantee ... local responsiveness and central control." In a similar vein, Coggins (1981) concedes that "management and improvement of the public lands will likely be delayed and perhaps retarded by lengthy and expensive judicial oversight," but then concludes that "such a development is healthy and overdue," a statement that would certainly be disputed by many of those interviewed in communities close to National Forests.

Legal challenges to agency decisions have also played a central role in ocean management, primarily in the area of fisheries management. As described above in the public lands context, advocates for any given position—primarily commercial fishermen, recreational fishermen, conservationists, and those who aspire to represent them—praise or decry intervention by the courts depending on how a particular ruling has affected their interests. A report from the National Research Council (NRC 2002a) looked in detail at the history of litigation against the National Marine Fisheries Service (NMFS), primarily cases arising from fishing industry resistance to catch reductions and environmental groups' desire for greater protection of fish populations and ecosystems. The report finds that, since the mid-'90s, environmental plaintiffs successfully used MFCMA, NEPA, and the ESA to increase judicial review of federal fishery management, based on environmental and social goals not given priority when Congress first crafted comprehensive fisheries legislation in 1976. However, challenges to the agency's failure

to prepare adequate environmental impact statements, as required under NEPA, has been a successful approach in blocking or delaying NMFS decisions. A companion report from the National Academy of Public Administration (NAPA 2002) agreed that fisheries management “is increasingly exercised by the courts through litigation ... and by constituencies that seek redress through these forums,” with rulings that sometimes favor increased emphasis on conservation, sometimes lean toward maintaining catch levels, and sometimes simply defer to agency judgment.

An important difference between the role of courts in Forests and the EEZ occurs because the single-sector approach to ocean management involves no broader planning process that can be reviewed. A court adjudicating a dispute about an offshore windfarm will not, and cannot, simultaneously consider ongoing plans for oil lease sales under the OCSLA, or review related fishing regulations under MFCMA. For more than ten years various parties have been fighting Cape Wind’s proposal to site a 130-turbine windfarm in federal waters between Cape Cod and Nantucket. Problems arose when the permit application, first filed in 2001, was looked on favorably by the Army Corps of Engineers, based on relatively narrow provisions in the Rivers and Harbors Act of 1899. By broadening the debate to include factors such as effects on threatened seabirds, interference with commercial fishing, disruption of prized viewsheds, and impacts on Native American sacred sites, opponents were able to find support for reconsideration from Members of Congress and the courts. In April 2010, relying on new authority for

offshore energy development granted to the Department of the Interior under the Energy Act of 20, Interior Secretary Ken Salazar announced his approval of the Cape Wind project but lawsuits are still pending (Horgan 2011). A similar proposal to site a windfarm off the coast of Rhode Island has progressed much more rapidly, due in part to its reliance on a broader ocean planning process that brought stakeholders together before a facility was proposed (Reuters 2012).

McKinney and Harman (2004) believe that many litigants are turning to courts to resolve essentially non-legal disputes. They document a history of participants attempting to re-frame fundamental values questions under cover of rights and legal mandates, going all the way back to the Eurocentric and cavalier--but court-enforced!—"first in time, first in right" property claims to native-occupied Western lands. The only way they see to avoid this misdirected emphasis, and thus honestly address differences in goals and values, is through greater public dialogue.

Participatory decision-making: As public faith in technocratic decision-making waned and the realization emerged that multiple-use management required someone to define "the public good," many observers suggested that the public itself might be the best source of guidance (Reich 1962). Since then, there has been an explosion of experiments, case studies, analyses, and theory building regarding the most effective role for the public in public policy.

Starting with statutory requirements to facilitate public participation, such as those in the Administrative Procedure Act (1946), Freedom of Information Act (1966), and National Environmental Policy Act (1970), and continuing through the '70s and '80s with highly-structured, formal opportunities for public comment on agency proposals, the trend on public lands over the last 20 years has been toward increasingly flexible, participatory efforts, referred to alternatively as place-based collaboration, community-based ecosystem management, interest-based negotiation, grass-roots ecosystem management, environmental conflict resolution, and collaborative governance (Gray 1985, Susskind et al 1999, Wondolleck and Yaffee 2000, Gray et al 2000, Weber 2000, Hibbard and Madsen 2003, Lane and McDonald 2005, Emerson et al 2012). New communities of knowledge and practice have emerged, drawing on the latest research in political science, behavioral economics, sociology, psychology, communications, and education. Where managers previously focused on isolated land units, "... relying on technical models to maximize production of a narrow set of goods," now "management is moving toward an ecosystem-scale perspective where agency officials collaborate with a range of groups to manage for a broad set of values across a fragmented landscape" (Yaffee and Wondolleck 2003).

Steelman (2001) articulates some of the major distinctions between "elite" (referred to in this chapter as technocratic) and "participatory" approaches, differences that reflect shifting views about government authority, the role of science, the attributes

of the individual, and the nature of democracy (see Table 6.2). The “periodic,” “limited,” and “passive” opportunities for participation found in the traditional model often mean that “crucial decisions have already been made and citizen involvement becomes a formality leading to small changes” (Smith and McDonough 2001). If indeed, the new locus of decisionmaking power is to be the public, then legitimate questions follow about what that implies. If the public means *all* citizens, elections are the traditional tools for gauging their views. But if, as many have suggested (e.g., Daniels and Walker 2001, O’Leary and Bingham 2003), truly meaningful participation requires face-to-face,

Table 6.2: Distinctions between elite (or technocratic) and participatory approaches.

	Elite	Participatory
Role for the public		
Opportunities to participate	Periodic	Continuous
Participating in opportunities	Limited/passive	Promoted/active
Locus of decisionmaking power	Vested in elites	Vested in the public
Value of democracy	Instrumental; procedural; as a means	Intrinsic; as an end and a means
View of bureaucracy	Trusting and competent	Skeptical, wary of accuracy of representation
Primary concern	Efficiency and stability, scientific rationality	Responsiveness to general will, growth of individual
Main form of participation	Voting and ratifying leadership	Multiple venues, local participation as most practical/rational
View of the public	Skeptical, sees public as apathetic, easily manipulated	Knowledgeable, discerning, and active

Source: Steelman 2001

collaborative dialogue, who should be at the table and who decides? Some possibilities include distinct, but often overlapping, groups: communities of *place*, those who share a connection to a specific location; communities of *interest*, similar to “advocacy coalitions” that share goals; and communities of *expertise*, those who focus on a specific issue, such as timber management or recreational fishing. Each of these groups will have legitimate interests in virtually any disputed issue but, where the aim is to agree on an appropriate mix of uses in a federally-owned or managed space, public participation experts generally look to communities of *place* as the preferred forum. This is where the drivers for collaboration are most intense and where the prospects for enduring trust and relationship-building are greatest.

Extensive case-study research has identified features commonly associated with the successful initiation, maintenance, and success of collaborative public participation in natural resource management (Yaffee and Wondelleck 2003, Leach 2006, Emerson et al 2012):

- Participants must have the capacity (i.e., skills, training, and information) for joint action;
- There must be a shared problem to be solved which provides the incentive to overcome the costs of continued dialog;
- Leaders and facilitators must allow for relationship and trust building apart from direct problem-solving efforts; and

- The process should be inclusive, transparent, negotiation-based, and consensus-seeking, accepting that full consensus may not be achieved.

When they work well, collaborative efforts can break through longstanding gridlock (examples in Chapters 4 and 5), result in greater stakeholder satisfaction with the process and subsequent decisions (Steelman and DuMond 2009), and decrease time spent in administrative appeals (Gericke and Sullivan 1994). Based on their detailed history of public lands management in the West, McKinney and Harmon (2004) conclude that the way to “produce wise, durable decisions over the use of natural resources is to bring together the right people with the best available information in constructive forums that focus on the places and issues people care about.”

Nevertheless, serious and sometimes profound philosophical and practical concerns about collaboration have been raised. Most critics complain that highly participatory processes, by their nature, will exclude some perspectives, either because those individuals are not aware of the proceedings or cannot be present (Manring 2005). Large national ENGOs have been some of the strongest opponents, believing that “the shift toward local control disenfranchises distant stakeholders ... Most of those who own the public forests are excluded from the process” (McClosky 1999). Critics also imply that local communities will inevitably be more focused on economic concerns than on environmental protection (Bryner 1998, McClosky 1999, Manring 2005). Community members reply that large, well-funded groups have chosen to concentrate

their resources and power in Washington D.C. and have become disconnected from the realities on the ground, a common complaint expressed in the case study interviews in Chapter 5. Wondolleck and Yaffee (2000) found that the resource-dependent communities they studied did include “vocal environmentalists, many of whom were at least as strident as the national groups” in advocating preservation.

The criticism of locally-led efforts is also couched in more philosophical terms, decrying the devolution of federal government responsibilities as out of keeping with the American form of government. For example, Manring (2005) fears that “the focus on the community of place ... [will] undermine the democratic accountability of the forest planning processes.” Others focus on the public trust doctrine and the need to allow *all* its beneficiaries to assert their legal rights. But many of these seemingly theoretical critiques of local decisionmaking are advanced by individuals associated with particular policy preferences—whether for increased environmental protection or fewer restrictions on extraction—who may be concerned that their desired outcomes will be under-represented at the local level.

A challenge also arises in trying to merge the benefits of a flexible collaborative approach into the existing highly structured legal and political system. Although Nie (2008) considers full delegation to local processes an “abdication of congressional, executive, and judicial responsibility,” he supports collaboration as a useful supplement to traditional decision-making processes. Even strong believers in the added benefits of

collaboration (e.g., Wondolleck and Yaffee 2000, McKinney and Harmon 2004) believe that its outcomes must be used as one input to established administrative processes.

A particular mismatch occurs between collaborative approaches and application of the 1972 Federal Advisory Committee Act (FACA). The purpose of that law was to limit the influence of special interests by requiring that government agencies follow specific procedures for assembling “advisory committees.” These requirements have been largely successful in limiting the worst of the old closed-door influence over agency decisions. However, they may also have, “created a number of chilling effects on public participation,” due to excessive procedural requirements and ambiguities in the law and regulations that discourage procedural innovation (Long and Beierle, RFF 1999).

To date, federal ocean managers have not really experimented with, let alone embraced, inclusive, collaborative governance. The processes for regulating ocean activities—from leasing offshore sites to issuing shipping regulations to regulating fishing—generally follow a traditional “notice and comment” approach to public participation.¹⁵ NAPA’s 2002 review of fisheries litigation revealed that: “The view of many of NMFS’ partners and constituents is that it does not reach out to involve them in meaningful participation in its activities. NMFS, from their standpoint, does not engage

¹⁵ There have been some exceptions. For example, NMFS has experimented with cooperative fishery research, which brings fishermen directly into the stock assessment process and the National Marine Sanctuary program actively engages its stakeholder advisory groups.

them in designing policies and programs, implementing projects, and evaluating results. Fishers question NMFS science and its motivation, just as environmentalists challenge its willingness to adopt restrictions.” The resulting recommendation suggests that: “The NMFS Assistant Administrator [should] issue a policy requiring responses to constituents’ and partners’ concerns ... [to be provided] as part of the decision process,” an approach that is very unlikely to appease a dissatisfied public.

The 2010 Executive Order for national marine spatial planning calls for “cohesive actions across the Federal Government, as well as participation of State, tribal, and local authorities, regional governance structures, nongovernmental organizations, the public, and the private sector”: an appropriate goal. However, implementation of the order so far has relied on very traditional outreach mechanisms, such as public hearings during which agency leaders make presentations and allow short public statements, and publication of draft documents in the Federal Register with brief public comment periods. It is reasonable to believe, given the similarities between the National Forests and the EEZ in their mix of stakeholders, the types of uses present, and the relevant authorities and following the principles of effective policy transfer, that more collaborative approaches may also prove useful in this setting.

One astute observation about the motivations behind collaborative efforts reminds us that, ultimately: “People act collaboratively as a strategy for achieving their

own interests, including their interest in [achieving] a creative and durable solution” (Yaffee and Wondolleck 2003, p.69).

Mixed approaches: In the real world, political, professional, judicial, and participatory approaches are usually operating simultaneously. Sabatier envisions “advocacy coalitions” — which typically include representatives from all these worlds — using their resources, influence, and connections to take advantage of any opportunity to advance their cause. Perhaps without fully realizing it, each group then tends to praise whichever venue is best-suited to their ends at any given time. For example, after boasting of the environmental movement’s successful use of grassroots organizing, media campaigns, public demonstrations, and Congressional lobbying to finally gain passage of the Wilderness Act — all quintessentially political levers — Scott (2001) goes on to say that, “A law ... represents a national social consensus. [...] The bicameral legislature and the gauntlet of Congressional procedures ... [produce laws that] are not susceptible to willy-nilly change with the ebbs and flows of American politics.” Moreover, the “social consensus” supposedly represented in the Act, which instructed the agencies to assess their lands for Wilderness potential and make recommendations to Congress, was then actively circumvented by the environmental community when the outcomes were not what they preferred.¹⁶ Not surprisingly, timber, mining, and oil

¹⁶ Scott proudly discusses examples of wilderness advocates side-stepping the mandated review process by lobbying Congress directly for wilderness designations that did not meet the statutory definition.

interests employ similar tactics, praising the solidity of legislation, the impartiality of agency decisions, the wisdom of the courts, or the power of the people, depending on which of these bodies is most in tune with their interests at that moment.

NAPA's 2002 study of fisheries management found that, "the two major constituencies—fishers and environmental and conservationist groups—regard the system as primarily serving the interests of the other." Based on my reading, research, and interviews, it appears that many individuals possess deeply-held predispositions toward confrontation or collaboration, whether based on personality, professional education and training, or previous successful and unsuccessful experiences.

Elected officials at local to national levels, staffs of many different agencies, courts from local to Supreme, and the public from near and far will continue to play central roles in policy debates. Combining this mix of actors with the political, ecological, and cultural variability found in National Forest and ocean communities is likely to create both decisionmaking *processes* and *results* that look different from place to place. The next section considers the possible consequences of such variability.

6.3.2.3 Harmonization or flexibility of approaches

A third difficult set of tradeoffs must be made between the desire for harmonization—with the certainty and predictability that accompany standardization—and the search for more flexible approaches, associated with greater adaptability and innovation. This tradeoff often mirrors the two examined above, regarding the correct

scale and *locus* of decision-making. Although different combinations of the three elements are certainly possible, scholars and advocates often lean toward either:

(1) nationalized, statute-driven (through Congress and the courts), predictable approaches (e.g., Coggins 1981); or

(2) localized, participatory, flexible approaches (e.g., Yaffee and Wondolleck 2003).

As discussed below, this may be as much the result of varied philosophical stances as it is of divergent analytical conclusions.

There is a definite appeal to managers in notions of standardization, rulemaking, coordination, and adjudication, all of which connote a degree of order and provide predictability to participants. These concepts are very much in tune with Progressive ideals (Pinchot 1947) and the related “modernist” perspective (Scott 2001): Through science, the rule of law, proactive planning, functional design, and rational analysis, society would be able to transcend the “messiness” of human behavior and maximize human welfare.

Where there are multiple, overlapping jurisdictions, statutes, offices, and agencies, all tasked with some aspect of resource management, calls frequently arise for standards, coordination, planning, or functional consolidation, back-stopped by court adjudication (e.g., Curtis 1973, Coggins 1981, Wilkinson 1997, Sanchirico et al 2010, Pew Oceans Commission 2003, USCOP 2004). Scientists and engineers are enlisted to forecast sustainable harvest levels, optimum use profiles, and predict maximum sustainable

yields, while mapmakers are relied on to create orderly spatial representations of ecosystems and human uses.¹⁷ One obvious advantage to such enforced uniformity is the assurance that high priority, national goals cannot be ignored in favor of local or regional interests. Good examples of this are the creation and maintenance of wilderness or the protection of endangered species. Both of these are essentially one-way ratchets—once wilderness is destroyed or a species is lost, there is little hope of reversing course—thus a heightened level of precaution may be warranted that limits flexibility.

One way to achieve greater consistency and uniformity is to enforce tighter links between offices and agencies, mandating coordination so that all arms of government are pulling in the same direction. MacCleery (1992) observes that as forest management moved toward more ecosystem-based goals, the former divisions of responsibility no longer functioned well: “A timber sale, formally the responsibility of the timber staff (and funded by a timber sale budget line item), may now be the mechanism to reduce forest fuels — a task which was previously the responsibility of the fire staff (funded by the fire budget line item). The same activity may also advance the objectives of restoring watershed conditions or enhancing wildlife habitat (under the purview of the watershed and wildlife staffs, respectively). It has sometimes been difficult for the existing functional disciplines — with their traditional budget line funding from Congress — to

¹⁷ Many scholars have noted that maps only include those features deemed important by the maps’ creators (Monmonier 1996). National Forest maps do not reveal areas whose ownership is disputed by prior inhabitants (Kosek 2006) and ocean maps are typically spotty in their coverage (NRC 2004) and limited in what they depict (St. Martin and Hall-Arber 2008).

rationalize and clarify their roles under the new mission focus.” Although this observation describes disconnects *internal* to the Forest Service, Chapters 5 and 6 showed that similar problems occur across agencies with overlapping missions, including the Fish and Wildlife Service, National Marine Fisheries Service, state fish and game departments, etc.

The report from the U.S. Ocean Commission (USCOP 2004) repeatedly decries the lack of coordination among ocean agencies and the resulting impact on environmental and economic goals, devoting entire chapters to topics such as “Coordinating Management in Federal Waters” and “Strengthening the Federal Agency Structure.” The Commission makes a number of recommendations for new federal bodies¹⁸ and proposes a long-term goal of “consolidation of all natural resource functions, including those applicable to oceans and coasts, [to] enable the federal government to move toward true ecosystem-based management.”

However, attempts to coordinate, centralize, or merge authorities also have critics who argue, for philosophical and practical reasons, that resource management will fare better by maintaining greater diversity among agencies and allowing more flexible, place-based solutions to develop. In his 1989 study of the San Francisco area public transit system—a crazy-quilt of buses, metro, light rail, and trolleys, all run by

¹⁸ Proposed new bodies include a National Ocean Council, Committee on Ocean Science, Education, Technology, and Operations, Office on Ocean Education, Office on Ocean Information, Committee on Ocean Resource Management, International Committee, and Presidential Council of Advisors on Ocean Policy (USCOP 2004, pp. 475-6).

different agencies—Chisholm begins by summarizing the then widely-accepted view that the system was “uncoordinated and in disarray [with] inefficient use of resources, lost opportunities, useless conflict” and “multiorganizational suboptimality.” The recommended cure had been “central control and vertical integration.” However, following extensive interviews and hundreds of hours of on-site observation, Chisholm discovered that widespread and effective coordination was in fact occurring, through “informal channels, behavioral norms, and personal agreements,” all prompted by perceived interdependence, joint challenges, and mutual needs. What’s more, the study found that these informal agreements and adaptations were often more stable and reliable than any formal mechanisms. Whereas forced coordination can become an end in itself, displacing substantive goals, Chisholm saw that decentralized systems could “increase innovation, encourage public participation, and strengthen local government capacity.” He concludes that most interagency disconnects are more likely due to genuinely different interests, uneven costs and benefits, and poorly structured incentives than to the common diagnosis of “structural defects.” Although informal channels for coordination can seem “messy,” Chisholm finds that “concerns about superficial consistency, neatness, and elimination of redundancy are badly misplaced.” Most suggestions for reorganization, he concludes, are not based on close study of the existing institutions, but reflect instead a kind of moral judgment about what a “good” organization should look like.

Two later works reach many of the same conclusions. In Bardach's 1998 study of interagency collaboration, he contrasts "the bureaucratic ethos [which] venerates hierarchy, stability, obedience, and procedures," with effective interagency cooperation which thrives on equality, adaptability, and discretion, supports flexibility of thought and action, and is focused on results. Likewise, Thomas (2003) finds that "politically imposed interagency committees typically provide little more than the appearance of coordination." Instead, "individuals work together to achieve things they cannot achieve individually" and true interagency cooperation is "shaped by the potential for joint gains." DeShazo and Freeman (2005) go a step further, finding that interagency conflict can actually be a *constructive* force in implementing multiple-use mandates. Looking carefully at agency decisionmaking, they find "not lone agencies making isolated decisions in a cocoon of bureaucratic insularity, but collections of agencies intervening in each other's decisionmaking processes." In fact, this echoes a study from 35 years earlier (Martin 1969) which concluded that, at that time, the Forest Service's multiple-use mandate was fostering strong, diverse, internal, conflict resolution within the Forest Service, causing "basically cooperative groups to manifest some healthy competition among their members."

Related to the tradeoffs between agency coordination and diversity are debates about how natural resource managers can enhance system resilience and facilitate adaptive management. From the 1970s on, a new generation of ecologists was

discovering that single-species, linear models do not accurately describe ecosystem processes, especially when humans and their activities are included. Instead, they turned to new concepts such as complexity, networks, cycles of growth and reorganization, multiple-equilibria, diversity, and resilience to explain the world (e.g., Holling 1986, Gunderson et al 1995, and many more). Social scientists were also updating older client-agent, cause-and-effect models of policy change, looking instead to public choice theory, institutional analysis, behavioral psychology, and political ecology (Sabatier 2007). These new views of ecology and human institutions both support the importance of flexible, context-specific, multiple-scale governance in increasing resilience to unexpected events and promoting nimbleness in adapting to changes in economic, ecological, social, or political conditions over time. Nie (2008) concludes that, by their very nature, EBM and adaptive management preclude precision and require agency discretion, acknowledging and accepting the implication that agencies would then have to be empowered to make some fairly subjective decisions. Like many others, Nie calls for the use of “management experiments,” wherein each decision is treated as a hypothesis, each outcome a data point, and careful monitoring and evaluation the means to revise approaches over time.

Unfortunately, flexible, adaptive management does not mesh well with traditional political, regulatory, and legal structures due to “short-term risk intolerance” (MacCleery 1992), “inherent cultural and institutional barriers ... [within] management

and regulatory agencies, including the Council on Environmental Quality” (Thomas 2003), and conflict with the legal system’s “mission ... to provide social stability” (Ruhl 2012). The Northwest Forest Plan, discussed in Chapter 5, included ten “adaptive management areas” covering about 1.5 million acres. These were specifically intended to be laboratories for testing innovative management practices, but the inflexibility of existing bureaucracy made that goal virtually impossible to implement (Stankey et al 2003).

6.4 Summary

This chapter first used findings from the fields of institutional analysis, policy development, collaborative governance, and policy transplantation to identify the similarities and differences between the National Forest and the EEZ most likely to affect policy-transfer and lesson-learning between these two public spaces. Striking overlaps are found in the mix of activities pursued, the types of parties involved, and ongoing tensions between resource exploitation and conservation. However, important differences also emerge that must be accounted for, such as species mobility, allocation of authority, and very different human experiences in the two settings. The chapter then looks back to National Forest analyses developed in Chapters 4 and 5 to evaluate how various policies and management approaches employed in the Forests might play out in the ocean setting.

As an experienced manager might predict, there is no simple, one-size-fits-all, “best” approach for managing public space and resources in the interests of all citizens. It is a challenge that requires choices to be made and tradeoffs to be accepted. Moreover, the outcomes of a given policy choice will not be the same in every place or in different time periods. Ecosystem-based management, where the ecosystem is understood to include all the related human communities, is complex, uncertain, and deeply context-dependent. But this does not mean that policy analysis has nothing to add, or that the results of particular policy options are completely unforeseeable.

In this chapter, three different areas were identified where tradeoffs have been particularly —and been widely analyzed—over the course of U.S. National Forest history: (1) the scale of problem definition; (2) the “who” and “how” of decision-making; and (3) the extent of flexibility allowed. The ocean management community, broadly defined in keeping with Sabatier (2007) as politicians, agency personnel, scientists and scholars, the media, advocacy groups, ocean industries, coastal communities, workers, and visitors, should be conscious of these tradeoffs and well-informed about the kinds of results likely to accompany different choices. Possible metrics for evaluating outcomes include: durable resolution of conflicts, participant satisfaction, cost in time and money, and effect on ongoing stakeholder relationships (McKinney and Harmon 2004); efficiency, equity, accountability, and adaptability (Ostrom et al 1994); compliance, feasibility, effectiveness, level of effort, and quality of outcomes (Imperial 1999 p. 455,

citing others); and information, coordination, and strategic transaction costs (Imperial 1999, Ostrom et al 1994). Each of these methods for weighing results itself embodies value judgments, and will be seen as more or less important by different participants.

With due caution and caveats, some ideas emerge from the study of forest management that are worthy of attention by ocean policymakers. To achieve a workable balance between the three branches of government, the multiple users of public space, science and judgment, and order and flexibility, key participants might take on the following roles and responsibilities:

- Congress, as the elected representatives for federal policy, could specify national goals for use and protection of the EEZ, examine the multiple, overlapping ocean laws and agencies to eliminate inconsistencies or contradictions, indicate priorities among goals/uses where possible, set broad standards that allow for flexibility and adaptation, refrain from pre-determining results; and set agency budgets that reflect the national goals rather than advancing specific outcomes.
- Federal agencies could be allowed sufficient discretion to craft sub-national goals and plans and issue necessary implementing regulations, recognizing that not all uses are compatible and that uses may have to be distributed over time and space. They could also provide opportunities for innovation and adaptation while ensuring that their legal obligations are fulfilled. Agencies could work closely and collaboratively within their own organizations and with other federal, state, local, and tribal authorities,

seeking areas of mutual gain rather than establishing rigid rules for cooperation.

Involvement of the public could go well beyond rote and formalistic approaches to foster real cross-sector learning and dialogue and follow the principle of subsidiarity.

For example, local input could be paramount for decisions with primarily local effects (e.g., allocation of nearshore space for fixed gear, see Acheson 2003), with increasingly broad regional to national input as the scale of potential impacts increases (e.g., climate change, endangered species).

- State, local, and tribal authorities could actively participate in planning and goal-setting exercises for portions of the EEZ likely to affect their interests, clearly articulating their stake in policy outcomes while recognizing that the EEZ is an area of national importance.
- Courts could ensure that agencies, under pressure from political leaders or outside influence, do not violate the goals and procedures established by Congress, while avoiding substituting their own judgments about results. Potential litigants could more carefully consider the significant costs of litigation, not only financially but in terms of impacts on ongoing relationships with other participants in the policy process.
- Researchers from a wide variety of fields including ocean sciences, marine ecology, resource economics, sociology, political science, public policy and administration, mapping, and others could find ways to communicate important findings to the public and decision-makers in a timely and accessible way, while

acknowledging the sources and magnitude of uncertainties, and making honest distinctions between scientific results and personal values.

- Advocates could continue to advance their constituents' perspectives, values, and interests, educating others about the basis for their views while remaining willing to listen to other perspectives, acknowledge the legitimate needs of others, and communicate respectfully. Because of the nature of our political system—and perhaps human nature itself—it is to be expected that all parties will seek whatever avenues are open to them to advance their interests, accentuating the need for transparency in decisionmaking processes.

- Foundations, agencies, the academic community and others could foster increased attention to, training for, and active experimentation with meaningful, professionally facilitated, collaborative processes, to be used as a supplement to any administrative proceedings required by law.

In the end, everyone involved will need to accept that managing the vast expanse of the U.S. EEZ in a way that benefits current and future generations is as important and complex as any human endeavor. There are no panaceas. There can be no single decisionmaker. If a solution seems simple, it is certainly neglecting something. Any workable approach will involve nested authorities at multiple-scales, operating under varying degrees of coordination, with a diverse public watching every step.

The next chapter looks at how these take-away lessons compare to the approach taken over the last three years to advance nationwide, regionally-driven marine spatial planning. Where actions depart from the ideas and lessons summarized above, alternatives are suggested that might help avoid foreseeable pitfalls.

7. A Closer Look at U.S. Marine Spatial Planning Efforts

Chapter 1 described how the idea of marine spatial planning (MSP)¹ in U.S. waters moved quickly from obscurity – promoted in the mid-2000s by a small number of academics, foundations, and environmental groups – to its current prominence on the national scene. Chapters 2 – 6 then took a step back to look at ocean policy and planning through a different lens: comparing institutional features of the EEZ with those on public lands to see in what ways they are similar and different; reviewing the history of National Forest management through documents and case studies; and finally considering how a century of land-based experience might inform ocean management. This chapter closes the circle by looking at the National Ocean Council’s proposals for implementing MSP and evaluating them in light of the policy analysis literature and findings in the previous chapters.

7.1 Approach and methods for this chapter

The analysis presented in this chapter is based on three primary documents that spell out the current administration’s plans for implementing marine planning:

1. The July 2010 Executive Order, “Stewardship of the Ocean, Our Coasts, and the Great Lakes” (Executive Order #13547, 2010);

¹ As mentioned in Chapter 1, the terminology used to describe ocean planning has been quite inconsistent over time, and from place to place. Recent U.S. government documents generally refer to “coastal and marine spatial planning,” abbreviated to CMSP, but the more common usage around the world and in the academic literature is marine spatial planning, or MSP.

2. The Interagency Ocean Policy Task Force's Final Recommendations, particularly Part Four, The Framework for Effective Coastal and Marine Spatial Planning (CEQ 2010, pp. 41-74); and

3. The National Ocean Policy Implementation Plan: Part Two, the Action Plan for Coastal and Marine Spatial Planning (NOC 2012, pp. 84-92).²

Each of these documents was examined element-by-element and then compared against the lessons for multiple-use management presented in Chapter 6.

In addition, over the last four years I conducted 66 telephone interviews with key informants knowledgeable about, or potentially affected by marine planning, including 19 federal or state resource managers, 7 academics, 7 fishing representatives, 17 other ocean users (from oil & gas, mariculture, renewable energy, ocean observing, and commercial shipping), and 16 staff members from environmental NGOs. Conversations generally lasted from 45 minutes to one hour, probing respondents' thoughts, insights, and concerns about managing public space, balancing use and conservation, and proceeding with MSP. The interviews were of three types: (1) 43 open-ended conversations; (2) 9 semi-structured interviews with ocean stakeholders likely to be directly affected by marine planning; and (3) 14 semi-structured interviews with representatives from industry and ENGOs who had participated in a series of

² This pre-decisional final draft of the Implementation Plan was made public in August 2012. Further changes may be made prior to final publication.

stakeholder workshops about marine planning sponsored by the Nicholas Institute for Environmental Policy Solutions at Duke University.³ Twenty-three of the interviews were recorded, transcribed, and analyzed using the NVivo qualitative analysis software package. During the remainder, careful notes were taken, including transcription of verbatim quotes in many instances.

Finally, I attended, observed, and took notes at three government-sponsored events related to the federal MSP initiative:

(1) The National Coastal and Marine Spatial Planning (CMSP) Workshop, held in Washington DC on June 21, 2011 (summarized in Meridian Institute, 2011);

(2) The West Coast Regional CMSP Listening Session, held in Portland, Oregon on July 1, 2011; and

(3) The inaugural meeting of the Northeast Regional Planning Body for MSP, held in Portland, Maine on November 19-20, 2012.

7.2 Design for marine spatial planning in U.S. waters

7.2.1 Executive action

The national marine planning effort was set in motion by President Obama in June 2009 (see timeline in Figure 7.1), just six months into his first term, when he sent a memorandum to cabinet members and agency heads creating an Interagency Ocean

³ The Nicholas Institute workshops and their results are described in detail in Gopnik et al (2012).

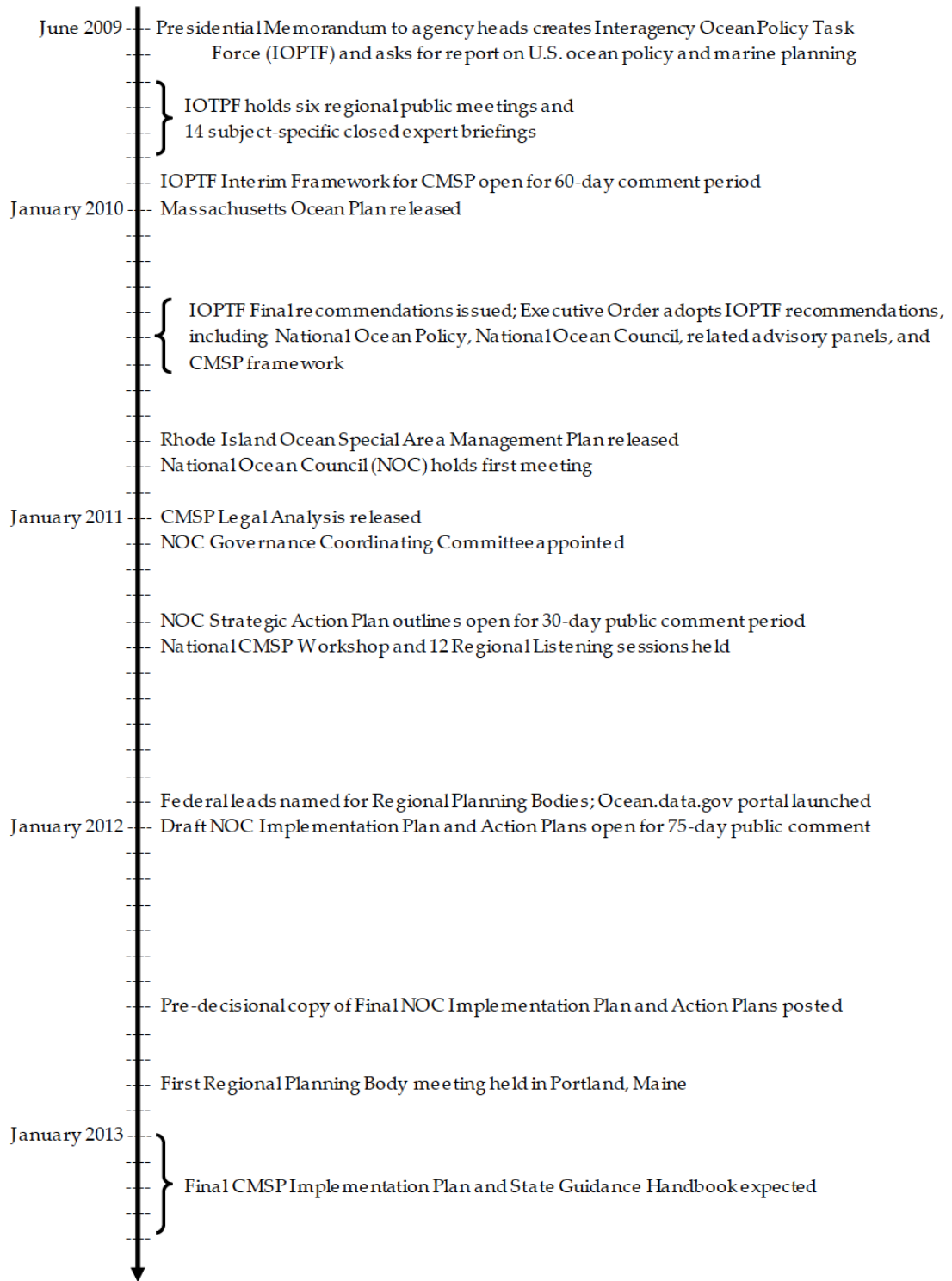


Figure 7.1: Timeline of marine spatial planning implementation in the U.S.

Policy Task Force (the Task Force) and charging it with “developing recommendations that include a national policy for our oceans, coasts and the Great Lakes, a framework for improved Federal policy coordination, ... and a recommended framework for effective coastal and marine spatial planning” (White House 2009). One year later, two documents were released simultaneously: (1) the final recommendations of the Presidentially-mandated Task Force (CEQ 2010), including its Framework for Coastal and Marine Spatial Planning (the Framework); and (2) an Executive Order that formally accepts the Task Force recommendations, establishes a new National Ocean Policy, creates a cabinet-level interagency National Ocean Council (NOC) with associated advisory bodies, and calls for development of “coastal and marine spatial plans that ... enable a more integrated, comprehensive, ecosystem-based, flexible, and proactive approach to *planning and managing sustainable multiple uses* across sectors and improve the conservation of the ocean, our coasts, and the Great Lakes” (Executive Order #13547, July 2010, emphasis added). The Order goes on to say that marine plans will be “certified by the National Ocean Council and developed in accordance with the definition, goals, principles, and process described in the [Task Force] Final Recommendations.” If this order is fully implemented, it will mark the dawn of deliberate, integrated, multiple-use management of U.S. ocean territory.

This approach, whether viewed as a positive development or not, immediately raises questions relative to the “lessons” summarized in the previous chapter as it

implements a significant new policy through Presidential direction rather than legislative action. Although a bill had twice been introduced in Congress to achieve much the same goals (H.R. 21, or OCEANS 21, introduced in January 2007 and January 2009), it was strongly opposed by industry, received only two hearings in subcommittee, and was never voted out of the House Resources Committee. Frustrated environmental supporters of these bills (e.g., Environmental Defense et al 2009) turned to the new Democratic president and his recently-appointed NOAA Administrator, a long-time environmental advocate, to advance H.R. 21's goals through executive action.

The President certainly has the authority to instruct Executive branch agencies to improve their coordination, to establish a Task Force within CEQ, and to set up an interagency committee. Furthermore, the National Ocean Council prepared a 50-page summary and review of "Legal Authorities Relating to the Implementation of Coastal and Marine Spatial Planning" (NOC 2011) to demonstrate how ocean planning efforts are well-grounded in existing law. Nevertheless, opponents of the new approach, including those who had successfully derailed H.R. 21, quickly attacked the new developments as an end-run around Congress. A press release from the Recreational Fishing Alliance (RFA 2009) labeled the newly appointed Task Force "an attempt by the Executive branch to circumvent the established legislative process and enact policy that failed as legislation 5 years in a row ... RFA believes enacting laws through Executive order and proclamation sets a dangerous precedence (sic)."

Although one can legitimately wonder whether the RFA would be as worried about overriding legislative prerogatives if the Executive Order had been to their liking, their charge does echo recurring concerns raised in Chapter 6. First, under the current approach, national goals and objectives for marine planning will need to be set by unelected agency staff, a frequent criticism of multiple-use planning on land. Second, no matter how sensible, well thought-out, and thoroughly-vetted the eventual plans might turn out to be, the absence of Congressional buy-in for this new direction in ocean management is likely to weaken implementation and threaten future appropriations. As one industry representative told me, “Without a legal requirement, people just won’t take MSP seriously,” while another pointed out that, “Nothing gets done if there’s not funds. [...] The way I understand it, there is no money attached to this. Somehow it’s got to get into legislation to be appropriately funded.” From an environmentalist’s perspective, “MSP doesn’t guarantee ecosystem protection. Unless there are specific, legal requirements for protected areas, resource users will keep chipping away at ocean space.”

7.2.2 Interagency Framework for marine spatial planning

7.2.2.1 Background

The most detailed document to date describing the new approach to ocean management is the “Framework for Effective Coastal and Marine Spatial Planning” (CEQ 2010 pp. 41-76), which was called for in the 2009 Presidential memo and drafted

by the Interagency Ocean Policy Task Force. The 25-member Task Force included not only the obvious natural resource agencies (e.g., NOAA, EPA, DOI, and CEQ) but also representatives from entities as diverse as NASA, the National Security Council, and the Office of the U.S. military's Joint Chiefs of Staff—in short, any agency with any authority, interest, or connection with ocean and coastal use or protection.

After setting the stage with a background discussion about marine planning—what is MSP and why do it—the Framework lays out National Goals and Guiding Principles for marine planning, describes a detailed sequence of implementation steps, and instructs the NOC to produce a Strategic Action Plan specifying additional elements. The text below summarizes each of these Framework elements and compares them to “lessons” about multiple-use management derived in Chapter 6.

7.2.2.2 Proposed benefits of planning

One purpose of the Framework is to justify the need for marine planning and convey the benefits expected to flow from its implementation. This responds directly to criticisms from the public, documented in comments on the CEQ website and articulated in my interviews with industry representatives, that marine planning is, at best, an unnecessary bureaucratic exercise—a “solution in search of a problem”—and, at worst, an attempt to drastically restrict activities in the ocean: “[MSP] is too complex, too

abstruse; there aren't enough conflicts or perceived problems to justify the time and money."⁴

The benefits proposed in the Framework include:

- sustainable economic growth in coastal communities, through greater transparency and predictability for economic investments;
- promotion of national objectives, such as enhanced energy security and trade;
- improvements in ecosystem health and services, by planning human uses in concert with the conservation of important ecological areas;
- a more complete evaluation of cumulative effects through a comprehensive look at multiple sector demands;
- greater opportunities for community and citizen participation in open planning processes to determine the future of the ocean, our coasts, and the Great Lakes;
- stronger and more diverse ocean economies and communities; and
- preservation of cultural and recreational uses, human health and safety, and the continued security of the United States.

Because the practice of MSP is still quite new—early experiments in Europe are barely seven years old (e.g., Maes et al 2005, Calewaert and Maes 2008) and no careful ex post facto studies have yet been conducted—it is extremely difficult to assess the

⁴ An opinion piece posted on ESPN.com on March 10, 2010 prompted bloggers to claim that Obama intended to “ban father-son fishing trips.” The website’s editors subsequently removed the piece and apologized for the inaccuracy.

likelihood of achieving all the benefits proposed by the Task Force. However, their breadth and generality are reminiscent of the aspirations once held for forest planning, and later ecosystem-based management, both of which fell short of resolving multiple-use conflicts on land to the satisfaction of all parties.

The Framework also emphasizes some things marine planning will *not* be or do. For example, CMSP “is not intended to supersede ... existing laws and agency authorities,” “would not vest the NOC or Regional Planning Bodies (RPBs) with new or independent legal authority,” “would not be regulatory or necessarily constitute final agency decision-making,” and “is not meant to delay or halt existing or pending plans and projects.” These disclaimers respond to persistent and increasingly vocal objections from some ocean users, notably the commercial fishing and offshore oil and gas sectors, who believe they are already thoroughly, perhaps excessively, regulated under current laws and see little upside to engaging with a new process. As stated by respondents from these sectors: “The Magnuson-Stevens Act works pretty well. ... When making management decisions that affect fisheries, it’s important that MSA be the prevailing authority;” and “The Outer Continental Shelf Lands Act works well, when it is allowed to work as designed. [It] already sets up a system to evaluate where it is and is not appropriate to site energy production facilities offshore.”

Industry resistance may also be related in part to the genesis of the MSP Framework. Note that the requirement for multiple-use planning in National Forests

was embodied in the 1976 National Forest Management Act, which amended existing forest management laws and conformed in many ways with ongoing Forest Service practice. MSP did not involve Congressional action, exists outside the established statutory structure, and represents a significant departure from current practice.

7.2.2.3 Regional approach

The Framework relies on a regional approach, with regions that coincide roughly with large marine ecosystems (LMEs) in U.S. waters, as had been recommended by the Ocean Commission (USCOP 2004). Although federal responsibilities lie mainly outside the three-mile band of state waters, the planning regions “extend landward to the mean high-water line ... [and] include inland bays and estuaries.” The Regional Planning Bodies (RPBs) are also permitted, but not required, to include inland areas as needed to account for the influences of land-based activities on coastal and ocean waters.

The membership of each RPB would consist of “Federal, State, and tribal authorities relevant to CMSP for that area ... with an appropriate level of responsibility to be able to make decisions and commitments.” The members of the RPB are further instructed to “coordinate” with other relevant authorities, whether local jurisdictions, other regional entities (e.g., Fishery Management Councils, existing Regional Ocean Councils, Watershed Councils), or bordering states, regions, and nations.

Although the proposed regional approach does not alter existing authorities, it is intended “to allow for the variability of economic, environmental, and social aspects

among different areas of the United States,” and requires RPBs to “define local and regional objectives ... and implement CMSP in a way that is meaningful to regionally specific concerns.” This explanation acknowledges the particularities of place so central to institutional analysis and common pool resource theory (see Chapter 3), but the extent of devolution of decisionmaking—from federal agencies to large regional compacts of state and federal representatives—is quite limited. Many policy analysts have struggled with the issue of reconciling multiple scales for decisionmaking (e.g., Young 2006, Marshall 2007) and related issues of subsidiarity (i.e., moving decisions to the lowest level possible) and “nesting” or interplay among scales. These themes were also explored in Chapter 6. One environmental advocate wondered: “How can we reconcile the scale of ecosystems, in other words LMEs, with the smaller scale needed for practical planning and inclusive stakeholder involvement?”

One sentence in the thirty-page Framework states that RPB’s have the “flexibility to develop sub-regional plans, provided that these plans are encompassed in an overarching regional plan and overseen by the regional planning body,” but the idea of nested, sub-regional planning is not mentioned again in any of the more detailed implementation steps despite substantial research that validates such an approach (e.g., Ostrom 1990, Young 2006, Marshall 2007) and National Forest experience with such nested plans. This worried one industry representative: “I just think [the timeline] is too

fast. ... It doesn't really allow for local and sub-regional input. That's the biggest concern; we need to have a more iterative dialog along the way."

7.2.2.4 Public participation

Increased public participation in ocean decisions, listed by the Task Force as one of the expected benefits of marine planning, is mentioned repeatedly throughout the framework. Although broad participation is justified in part "to strengthen mutual and shared understanding," a phrase that hints at a more collaborative approach, other details in the Framework indicate that the process envisioned will rely on fairly traditional participation techniques. The activities mentioned include informational workshops, public hearings, public comment processes, document availability, educational materials, webinars, and manuals "to better inform all participants." These fall far short of the methods recommended when the goal is to help a wide range of potentially competing or conflicting partners reach a shared vision, as has been done successfully in some National Forest settings (Wondolleck and Yaffee 2000, Daniels and Walker 2001) and certain ocean programs such as the National Estuary Program and the Florida Keys National Marine Sanctuary (Delaney 2003). One indication that national ocean leaders have not yet accepted and incorporated the latest findings of public participation experts was evident at the three public events I attended, all of which were billed as opportunities for stakeholder input: more than half the available time was filled

by statements and presentations from agency representatives, with very limited windows for comments from the public and no meaningful cross-sector dialogue.

The importance of active stakeholder engagement was a major theme in conversations with the ocean user community. Fishermen were particularly concerned about their ability to participate in traditional events: “We’re pleased to see that stakeholder input is gonna be mandatory. ... [But] we’ll see how that process works out, particularly with our constituents who have day jobs and aren’t gonna be able to attend all of these meetings. How that’s gonna work, how’s their input gonna be obtained?” and “If you don’t have clout and money, it’s hard to participate in public policy. Rural, small-town folks get left out of ocean policy discussions.” Larger industrial users saw the need for active, face-to-face dialogue among diverse stakeholders: “[We] need better dialogue between different sectors aimed at finding compromises and solving problems,” and “There’s a lot of trust issues that have to be dealt with ... You’ve got some folks that ... are afraid of new uses in the ocean. You could characterize them as ‘NIMOs’: Not In My Ocean. [Then there’s] the other extreme of, ‘Whoa, don’t tell me what to do!’”

7.2.2.5 Data and science

The importance of gathering and continually improving data and science is strongly emphasized throughout the Framework, which proposes that “CMSP is fundamentally science based” and plans should be adapted “in response to new

evidence, technology, and understanding.” Integrating existing data across government agencies and levels, setting national standards for data formats and quality, and making data and information widely accessible through a geo-referenced, internet-based portal are all considered priorities for action. In addition, the Framework calls for development of derived data products such as “consistent habitat maps” and “specialized decision-support tools” that allow for “objective assessment of alternative and future scenarios.”

What types of science and data the Task Force has in mind is less clear. The opening paragraph of the section on “Scientific Data and Knowledge” (CEQ 2010, pp. 66-69) talks in broad terms about the need to understand “human uses, ecosystem conditions, [and] management alternatives” in “the context of changing environmental conditions and societal needs,” all critical elements. However, the proposed approach for assembling such data and creating decision-support products seems to be heavily oriented toward large existing natural sciences databases, proposing that they be merged using “recognized national and international data standards and protocols,” and GIS-based decision support tools. Such large databases, data standards, and spatially-referenced data are not yet available for most of the social science information that will be needed which—to the extent it exists—tends to be qualitative (based on case

studies and interviews) and somewhat idiosyncratic based on the disciplinary roots of the researcher.⁵

The importance of natural sciences to resource management is undeniable and their contributions to the improvement of forest management were evident in Chapters 4 & 5. For example, advances in forest ecology allowed managers to move from the inadequate “trees as crops” paradigm toward a more nuanced view of ecosystem-based management. However, at their core, multiple-use management challenges are about tradeoffs among human goals and values. A focus on physical and biological data, with limited understanding of the communities who value and rely on the ocean, will limit long-term success in marine planning. As one fisherman said, “[Government] needs better knowledge about biological, economic, *and* social factors. They really need business experts and psychologists more than traditional economists! Managers need to know and understand the folks they’re regulating.”

7.2.2.6 National Goals and Guiding Principles

Responding to its charge from the President, the Interagency Task Force developed seven Goals and twelve Guiding Principles for CMSP in the U.S. (listed in Boxes 7.1 and 7.2 respectively), where the Goals are intended to “define the desired outcomes” and the Principles to provide the means “to achieve the national goals.”

⁵ These issues were explored in depth at a forum on Social Science for Coastal Decision-Making held in February 2012 and archived at <http://www.csc.noaa.gov/socialcoastforum/>.

Box 7.1. The National Goals of CMSP

1. Support sustainable, safe, secure, efficient, and productive uses of the ocean, our coasts, and the Great Lakes, including those that contribute to the economy, commerce, recreation, conservation, homeland and national security, human health, safety, and welfare;
2. Protect, maintain, and restore the Nation's ocean, coastal, and Great Lakes resources and ensure resilient ecosystems and their ability to provide sustained delivery of ecosystem services;
3. Provide for and maintain public access to the ocean, coasts, and Great Lakes;
4. Promote compatibility among uses and reduce user conflicts and environmental impacts;
5. Improve the rigor, coherence, efficiency, and consistency of decision-making and regulatory processes;
6. Increase certainty and predictability in planning for and implementing new investments for ocean, coastal, and Great Lakes uses; and
7. Enhance interagency, intergovernmental, and international communication and collaboration.

(Source: CEQ 2010, p. 47)

The first three Goals are essentially those of multiple-use management on land: support sustainable, productive uses; protect resources and ecosystems; and maintain public access. The next four—reduce user conflict, improve efficiency, increase predictability, and enhance interagency communication—describe desirable *process* features more than actual outcomes. The crucial unanswered question, in the ocean setting as it was in the National Forests, is how these potentially conflicting goals are intended to be weighed against each other. Would the creation of an efficient, predictable process (Goals 5 & 6) be worth some level of economic (Goal 1) or environmental (Goal 2) sacrifice? What level of reduced public access to the ocean (Goal 3) could be justified to achieve more robust ecosystem resilience (Goal 2)?

Box. 7.2. The National Guiding Principles for CMSP

1. CMSP would use an ecosystem-based management approach that addresses cumulative effects to ensure the protection, integrity, maintenance, resilience, and restoration of ocean, coastal, and Great Lakes ecosystems, while promoting multiple sustainable uses.
2. Multiple existing uses (e.g., commercial fishing, recreational fishing and boating, subsistence uses, marine transportation, sand and gravel mining, and oil and gas operations) and emerging uses (e.g., off-shore renewable energy and aquaculture) would be managed in a manner that reduces conflict, enhances compatibility among uses and with sustained ecosystem functions and services, provides for public access, and increases certainty and predictability for economic investments.
3. CMSP development and implementation would ensure frequent and transparent broad-based, inclusive engagement of partners, the public, and stakeholders, including with those most impacted (or potentially impacted) by the planning process and with underserved communities.
4. CMSP would take into account and build upon the existing marine spatial planning efforts at the regional, State, tribal, and local level.
5. CMS Plans and the standards and methods used to evaluate alternatives, tradeoffs, cumulative effects, and sustainable uses in the planning process would be based on clearly stated objectives.
6. Development, implementation, and evaluation of CMS Plans would be informed by sound science and the best available information, including the natural and social sciences, and relevant local and traditional knowledge.
7. CMSP would be guided by the precautionary approach as reflected in Principle 15 of the Rio Declaration, "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."
8. CMSP would be adaptive and flexible to accommodate changing environmental conditions and impacts, including those associated with global climate change, sea level rise, and ocean acidification; and new and emerging uses, advances in science and technology, and policy changes.
9. CMSP objectives and progress toward those objectives would be evaluated in a regular and systematic manner, with public input, and adapted to ensure that the desired environmental, economic, and societal outcomes are achieved.
10. The development of CMS Plans would be coordinated and compatible with homeland and national security interests, energy needs, foreign policy interests, emergency response and preparedness plans and frameworks, and other national strategies, including the flexibility to meet current and future needs.
11. CMS Plans would be implemented in accordance with customary international law, including as reflected in the Law of the Sea Convention, and with treaties and other international agreements to which the U.S. is a party.
12. CMS Plans would be implemented in accordance with applicable Federal and State laws, regulations, and Executive Orders.

(Source: CEQ 2010, p.48)

These are not scientific questions. If the goals are considered of equal importance, the use of scenario evaluation tools becomes less feasible and the need for collaborative dialogue more pressing.

Guidance is also needed on the question of whether all uses must be accommodated everywhere or whether some areas can be set aside for limited use. This was addressed for National Forests in the 1960 Multiple Use Sustained Yield Act which required foresters to manage forest resources, “in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services [and so] that some land will be used for less than all of the resources” (see discussion in Chapter 4, section 4.2.3).

Virtually all of those interviewed worried about how to find an appropriate balance among different ocean uses and between use and conservation. One individual promoting offshore renewable energy feared that, “existing users—like shipping lanes, the military, even fishing—will always get priority over new users.” Speaking more generally, an industry executive suggested that, “[Environmentalists] see businesses as annoying threats to the environment, not valuable contributors to society.”

Fishermen were particularly vocal on this subject:

It’s a bad idea to put permanent structures in the ocean. It’s important to maintain free navigation and not block access or movement. ... There are already problems with old oil rigs, abandoned telecommunications cables, etc.

Ocean users who need permits and leases can stake out space and will be able to crowd out others. ... We need to think broadly about *all* users' needs and look for synergies, user compatibilities, and dual-use opportunities.

Sanctuaries and other marine protected areas wall off public resources from public use. ... Fishermen are afraid that 'MSP' is just a Trojan horse for bringing in more MPAs.

Not surprisingly, environmental advocates felt quite differently:

One problem with tradeoff processes is that conservation gets undervalued. Look at the Forest Service and BLM!

The top priority should be to get more refugia in place, using climate change as the excu... [*stops himself*], I mean, justification. This will raise public awareness of oceans in general, and then we can do more sophisticated planning.

Current users, especially fishermen, or at least their official representatives, have come to view use of the entire ocean as their right. That makes it difficult to compromise.

Repeated references [in the Framework] to the need for 'balance' ... could be interpreted to suggest that conservation is just one of many objectives of the policy rather than a central purpose.

Complete multi-use optimization is obviously too complicated; we should start by optimizing *ecosystem* protection, and then fit other uses around that.

The Guiding Principles presented in the Framework (Box 7.2) are even more general and varied than the National Goals, but can be boiled down to the following directions to planners:

- adopt ecosystem-based management principles and the precautionary approach to achieve a multiple-use regime for ocean space that protects ecosystems, reduces conflicts, and increases investor certainty;
- set clear national and regional objectives for marine plans, while respecting all pre-existing state, tribal, federal, and international objectives, laws, treaties, plans, and agreements;
- engage government partners, affected stakeholders, and the general public;
- look to the best available information and most current natural and social science findings to support decisions; and
- monitor outcomes and adapt plans as needed to better meet objectives and account for changing environmental conditions, human needs, and understanding.

Most of these Principles, such as an ecosystem approach, clear objectives, engagement of all parties, reliance on sound science, and adaptability, reflect commonly-discussed—although difficult to achieve—elements of any effective natural resource governance regime. One of the more controversial Principles is the requirement for plans to be guided by the precautionary approach, intended to ensure that, “where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental

degradation” (UNCED 1992). This approach has been heavily promoted by the environmental advocacy community, with support from many marine ecologists concerned about preventing natural resource damage in general and especially wary of reaching possible ecosystem tipping points (e.g., Cameron and Abouchar 1991; Raffensberger and Tickner 1999; Science and Environmental Health Network 2000). However, the precautionary approach has been vociferously opposed by others, often those with economic interests, who see it as a symbol of environmental obstructionism and fear it could be used to oppose virtually any industrial use that may pose unknown and unpredictable risks (Sunstein 2000; Goklany 2001).

7.2.2.7 “Essential Elements” and implementation steps

In addition to the general guidance, National Goals, and Guiding Principles described above, the Framework goes further to specify *how* regional planners should proceed with their task, the “Essential Elements of the CMSP Process” (Box 7.3-a), and what their final product should include, the “Essential Elements of a CMS Plan” (Box 7.3-b). The regional workplans, and eventually the marine spatial plans themselves, are to be reviewed and evaluated by the NOC based on adherence to these elements.

Finally, the Framework presents a detailed sequence of steps to be followed by the NOC and RPBs as they create marine plans. Because the subsequent NOC Action Plan for CMSP (NOC 2012) discussed in the next section expands on, modifies, and omits some of these steps, they are reviewed and analyzed further there. However, the

Box 7.3 “Essential Elements” for marine planning as specified by the Interagency Ocean Policy Task Force

a) Essential Elements of the CMSP Process

- Identify Regional Objectives
- Identify Existing Efforts that Should Help Shape the Plan throughout the Process
- Engage Stakeholders and the Public at Key Points throughout the Process
- Consult Scientists and Technical and Other Experts
- Analyze Data, Uses, Services, and Impacts
- Develop and Evaluate Alternative Future Spatial Management Scenarios and Tradeoffs
- Prepare and Release for Public Comment a Draft CMS Plan with Supporting Environmental Impact Analysis Documentation
- Create a Final CMS Plan and Submit for NOC Review
- Implement, Monitor, Evaluate, and Modify (as needed) the NOC-certified CMS Plan

b) Essential Elements of a Coastal and Marine Spatial Plan

- Regional Overview and Scope of Planning Area
- Regulatory Context
- Regional Assessment
- Objectives, Strategies, Methods, and Mechanisms for CMSP
- Compliance Mechanisms
- Monitoring and Evaluation Mechanisms
- Incorporation of the Dispute Resolution Process

(Source: CEQ 2010)

sum of the Goals, Principles, Essential Elements, and other requirements set forth—by a Task Force composed exclusively of federal agency representatives—certainly results in a more detailed, prescriptive, and centralized process than the research and history reviewed in Chapters 3-6 would suggest is desirable for such a large undertaking covering such diverse regions. This did not go unnoticed by one industry observer who told me: “The release of the Framework represented the biggest setback in terms of

being able to get behind CMSP. ... When you look at its description of ... how regional plans are supposed to be developed, it starts to read like the instructions to a complicated board game and it is of huge concern to me that it is so confused about where authority lies and who does what."

7.2.3 National Ocean Council Implementation Plan

7.2.3.1 Background

The recommendations issued by the Interagency Ocean Policy Task Force and endorsed by the July 2010 Executive Order created a new National Ocean Council with a number of assignments, foremost among them development of a detailed National Ocean Policy Implementation Plan, to be released by April 2012. Although a draft plan was issued promptly in January 2012, the combination of an extended 90-day public comment period, a number of hostile hearings in the House Resources Committee,⁶ and a wish to avoid election year politics (personal communication with a senior member of the NOAA staff, September 2012) has delayed release of a final plan.⁷

The pre-decisional draft of the Implementation Plan reviewed here (NOC 2012) includes two parts. Part I, the overview section, repeats much of the text found in the Framework, including the diagnosis of the problems with ocean management

⁶ U.S. House Resources Committee Oversight Hearing on "The President's New National Ocean Policy - A Plan for Further Restrictions on Ocean, Coastal and Inland Activities," October 4, 2011 and October 26, 2011; Oversight Hearing on "Empty Hooks: The National Ocean Policy is the Latest Threat to Access for Recreational and Commercial Fishermen," March 22, 2012; Oversight Field Hearing on "Alaska's Sovereignty In Peril: The National Ocean Policy's Goal to Federalize Alaska," April 3, 2012.

⁷ As of January 2013, the final plan has still not been released.

("complex, overlapping laws, authorities, and mandates") and conclusions about the proposed remedy (better coordination). To an even greater extent than in the Framework, the Implementation Plan stresses repeatedly that its guidance does not change or override any existing laws, regulations, or authorities, a concern raised repeatedly by Members of Congress and business groups. Part Two then presents Strategic Action Plans for each of nine National Priority Objectives set by the task Force: (1) Ecosystem-Based Management; (2) Inform Decisions and Improve Understanding; (3) Observations, Mapping, and Infrastructure; (4) Coordinate and Support; (5) Regional Ecosystem Protection and Restoration; (6) Resiliency and Adaptation to Climate Change and Ocean Acidification; (7) Water Quality and Sustainable Practices on Land; (8) Changing Conditions in the Arctic; and (9) Coastal and Marine Spatial Planning.⁸ The last of these, the Action Plan for Coastal and Marine Spatial Planning (pp. 84-92), is most relevant to this study's exploration of multiple-use management of federal space and will be the focus of the remaining discussion.

7.2.3.2 Implementation of marine spatial planning

Although the MSP Framework issued in 2010 included fairly detailed recommendations about how marine planning should be conducted, it also assigned a

⁸ As presented by the NOC and copied here, this list is an odd mix of "apples and oranges" – in both grammar and substance. In the Task Force final report the same nine National Priority Objectives were somewhat more logically ordered and grouped into two categories: (1) "How We Do Business," including EBM, CMSP, more informed decisions, and better coordination; and (2) "Areas of Special Emphasis," namely climate change, ecosystem protection, water quality, the Arctic, and observations and mapping. It is unclear why the order and grouping of objectives was changed between one document and the next.

number of additional CMSP-related tasks to the not-yet-created NOC. Those eight tasks and their disposition are described below:

1. Convene a National Workshop to engage potential federal, state, and tribal partners, explain the purpose of CMSP, review the Framework, and engage in a CMSP simulation.

This workshop was held in June 2011 and its summary (Meridian Institute 2011) describes the presentations made and the major themes and concerns that emerged, including: (1) the appropriate role for stakeholders; (2) the desire for sub-regional planning to be allowed; (3) the need for “significant flexibility” at regional and sub-regional levels; (4) concerns about obtaining funding for CMSP without undermining other ongoing ocean programs; (5) the relationship of Regional Planning Bodies and CMSP to existing regional initiatives, coastal and ocean plans, laws, and regulations; (6) the role of formal Tribes and non-Federally recognized indigenous peoples, in light of their traditional ocean connections and knowledge; (7) the importance of acquiring and disseminating good data to support planning while ensuring appropriate confidentiality; and (8) the significant variability in readiness among regions. The current Action Plan addresses many of the concerns raised in the workshop.

2. Create a national Public and Stakeholder engagement process “to better inform all participants and the public.”⁹ Although no such process is articulated in the Action Plan,

⁹ Note that the Action Plan repeatedly refers to “stakeholders and the public,” thus drawing a distinction between them. The two terms are used interchangeably in this document since every member of the public holds a stake in the management of a public resource such as the ocean.

the NOC suggests it will convene a series of regional workshops to “educate, listen to, and connect with the American people about marine planning.” As in the Framework document, some of the language employed in discussing these workshops, such as “develop ... a shared understanding” and “identify ... solutions, and collaborative strategies” reflects recommendations found in the public participation literature. However, other sections paint a more traditional picture, wherein agencies remain the substantive leaders, accepting reactions from the public in controlled, time-limited settings. Certainly, the development of the Implementation Plan itself followed such a model, with one-time regional “listening sessions,” invitation-only briefings, closed conference calls with “targeted stakeholder groups,” and official, written public comment periods. Although the Plan “was informed by input from over 50,000 individuals and groups,” and states that “each comment was carefully considered and revisions were made to address the most critical and common points,” this approach is quite different from the time-intensive, community-based, stakeholder-driven, face-to-face collaborative engagements found to be most effective in other contentious multiple-use situations. To be fair, the extremely tight timelines set by the Executive Order and Task Force made it virtually impossible to initiate an inclusive dialogue, but there is no mention of that constraint or indication that such a process would have been more desirable.

3. Assemble a national ocean information management system, including “guidance on data, technology, and tools.” This is a concrete, technical task well suited to the skills of professional agency staff and a beta version of the integrated ocean data portal (Ocean.data.gov) was promptly launched in December 2011. It currently includes links to 289 federal government datasets deemed relevant to regional marine planning, with others to be added as they are made available by the agencies. The categories of data included are “Administrative and Regulatory,” “Biology and Habitats,” “Ecological Functions, Processes, and Impacts,” “Elevation and Bathymetry,” “Energy and Mineral Resources,” “Human Use,” and “Physical and Oceanographic.” Some regions are creating their own portals (e.g., New England’s Northeastoceandata.org), to supplement the federal data with region-specific datasets compiled by state and local government or other investigators.

These information hubs should be useful for marine planners and managers. Equally important, the study of public participation finds that broad access to a reliable, shared pool of information is an important element of building trust and understanding (e.g., Heikkila and Gerlak 2005). One significant shortcoming of the data portal is the continued absence of social science information beyond basic demographics, economics, and catalogs of human uses. Rather than any deliberate exclusion, this gap reflects the federal ocean agencies’ ongoing underinvestment in research to better understand

ocean-related communities, their institutions and interactions, in other words, the critical policy analysis variables identified in Chapter 3.

4. Advance the establishment of Regional Planning Bodies (RPBs) by appointing federal leads for each region and creating a **Model RPB Development Agreement** “to foster efficiency and consistency in forming the regional planning bodies.” Federal leads were assigned to each RPB in early 2012, and states and tribes have appointed their members in a few regions, notably the Northeast and Mid-Atlantic. In response to concerns raised about limited representation on the RPBs, including an active campaign by the Regional Fishery Management Councils (see e.g., RFMC 2011), the Action Plan calls for inclusion of a Regional Fishery Management Council member on each RPB, as well as a representative from local government, and emphasizes the importance of close coordination with other potentially relevant regional bodies and neighboring states and nations.

No Model RPB Agreement has been provided by the NOC, and it is not mentioned in the Strategic Action Plan. With some RPBs already working and others being set up, the NOC may have decided to allow regions the flexibility to figure out this step without further federal guidance.

5. Issue regional guidance documents, including guidance for developing regional objectives, performance measures, data management plans, and stakeholder processes that are consistent with those at the national level. Although the NOC plan mentions a

“Handbook for Regional CMSP” as a deliverable to be provided in 2012,¹⁰ it provides no details about its contents and reiterates that any such guidance will be strictly non-binding and will not limit RPB flexibility, a step back from the more prescriptive tone found in the Framework document.

6. Prepare a legal analysis to “examine how various statutory authorities ... can be harmonized” in support of CMSP, and “identify gaps and conflicts and recommend potential steps to reconcile them.” In January 2011, the NOC released a document, “Legal Authorities Relating to the Implementation of Coastal and Marine Spatial Planning” (NOC 2011) whose introduction explains that:

Several Federal statutes specifically authorize agency planning with respect to the ocean ... [and] federal agencies and departments also administer a range of statutes and authorized programs that provide a legal basis to conduct CMSP ... CMSP is intended to provide a better framework for application of these existing laws and agency authorities...

To cement this case for existing authority to proceed with marine planning, the report lists dozens of U.S. laws, Executive Orders, and treaties, providing brief summaries of their major provisions and explaining their connection to MSP. The NOC did not take on the task of identifying “gaps and conflicts,” or make any legislative recommendations about statutory harmonization, probably a prudent attempt to avoid further antagonizing an already touchy Congress, concerned that its role is being bypassed.

¹⁰ As of January 2013, the Handbook has not been released.

7. Design dispute resolution mechanisms that would “enable concerns and issues ... to be resolved quickly, rationally, and fairly” and with “consistency from region to region” should members of a RPB disagree about the planning process or outcome. The procedures should ensure that disputes are resolved at the regional level whenever possible, with intervention by the NOC if necessary. Once again, the NOC did not mention this task in the Action Plan, leaving open the question of whether it will be tackled later or left up to the regions.

8. Set National Objectives and National Performance Measures for MSP. The Framework states that objectives may be based on “economic, conservation, security, or social” needs, but must be “consistent with, and in furtherance of, the National [Ocean] Policy, CMSP goals and principles, and other relevant national goals and priorities.” The NOC chose to establish two such objectives:

National Objective #1: Preserve and enhance opportunities for sustainable ocean use through the promotion of regulatory efficiency, consistency, and transparency, as well as improved coordination across Federal agencies.

National Objective #2: Reduce cumulative impacts on environmentally sensitive resources and habitats in ocean, coastal, and Great Lakes waters.

Stated more succinctly, the national objectives for CMSP are to increase sustainable marine use through improved management efficiency and to decrease environmental impacts, the holy grail of multiple-use management. “National Performance Measures,”

called for in the Framework to “help define success” in achieving the national objectives, were not defined, or mentioned, in the NOC Action Plan.

Figure 7.2 illustrates the full sequence of steps at the national and state levels recommended to create regional marine plans, drawing on both the Framework and the Strategic Action Plan. As shown, not all actions or planning steps recommended in the Task Force Framework were subsequently mentioned in the NOC Action Plan, leaving it unclear whether they remain applicable. Each RPB first agrees on a workplan and timeline to be followed, which may or may not need to be approved by the NOC. The RPB then follows these steps to craft its regional marine plan. The NOC must verify that the proposed marine plan is “consistent” with the National Ocean Policy, National Goals, National Guiding Principles, National Objectives, Essential Elements for CMSP Planning, Essential Elements of CMS plans, NOC Guidance documents, and “other national priorities” before approving the plan for implementation. According to the Framework document—but left unaddressed in the NOC Action Plan—all members of the RPB and federal agencies will subsequently conform their actions to the plan, to the extent compatible with their statutory mandates. Where a plan conflicts with an agency’s legal requirements, regulatory or legislative changes should be suggested to remedy the mismatch. Agencies will also employ their enforcement powers to help achieve compliance with the plan.

National Ocean Council Tasks

Regional Planning Body Tasks

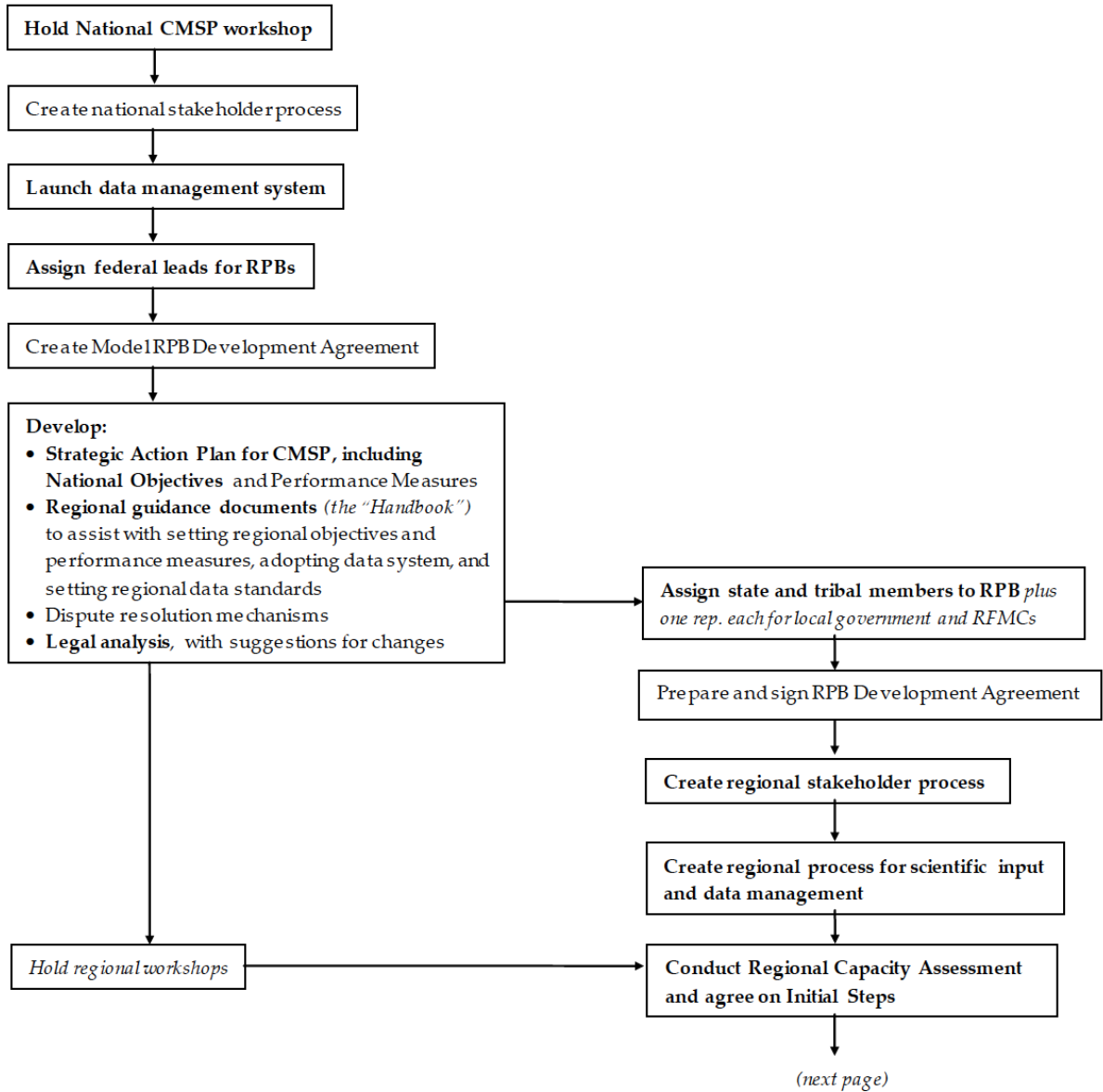


Figure 7.2: Steps in U.S. marine spatial planning implementation (Items in plain type were mentioned only in the Task Force Framework; items in **bold** are included in both the Framework and the NOC Action Plan; items in *italics* were only introduced in the Action Plan.)

National Ocean Council Tasks

Regional Planning Body Tasks

(from previous page)

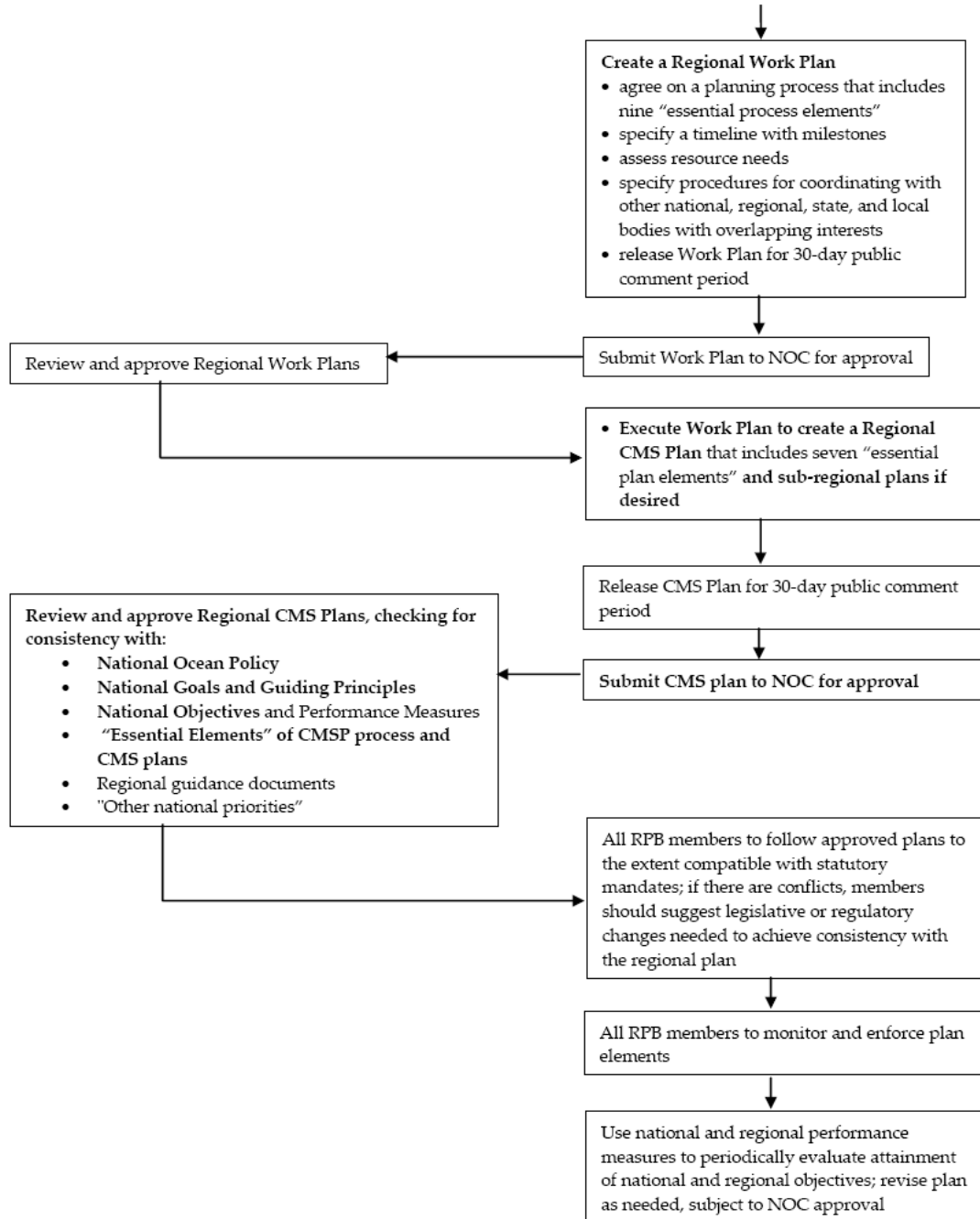


Figure 7.2 (continued)

As a final step, results will be monitored and national and regional performance measures (not mentioned in the NOC Action Plan) will be used to evaluate progress toward national and regional objectives, resulting in revisions to the marine plan as needed. The importance of monitoring the outcomes of resource management in order to adapt as needed has been stressed throughout the literature on ecosystem-based management (e.g., Caldwell et al 1994; Gilliland and Laffoley 2008), as well as in several recent guides for MSP best practices (e.g., Beck et al. 2009; Ehler and Douvère 2009). But, as noted in the review of National Forest management in Chapters 4, 5, and 6, weighing the flexibility and adaptability that are needed to deal with uncertainty, against the clarity and reliability often desired by the regulated community, remains a major challenge. Many of those interviewed raised this dilemma:

It's too soon for MSP because new uses are too untested. ... We don't want to be "locked in" to certain areas when technologies are still changing.
[Renewable energy]

There's always going to be uncertainty in the market, but there shouldn't be uncertainty in the regulatory system ... Companies ... are capable of operating within highly structured review processes provided they can rely on getting a clear answer (even if it is a rejection!) in a predictable period of time. [Oil industry]

How can we do "adaptive management" once there are hard structures in the water? That level of investment precludes frequent review, adaptation, or changes in location. [Fisherman]

Both agencies and users hate change. Everyone wants to move on after a decision is made. [Academia]

One source noted astutely that, “Monitoring is expensive and lacks political support. ... [If it] reveals a *failure* to reach objectives, the program will be open to criticism and funding cuts.”

Because the NOC Action Plan is much less detailed than the Framework on the subject of monitoring and adaptation, and presents only a few milestones for action, it remains unclear how this issue will be addressed nationwide or whether this challenge will be delegated to the RPBs.

7.3 Discussion

Comparing the developing approach to marine planning in the U.S., as described in the Interagency Ocean Policy Task Force Framework and the National Ocean Council Strategic Action Plan, to the “lessons learned” from National Forest management summarized at the end of Chapter 6, several issues emerge. These concerns are outlined below, with suggestions about how the ocean community might address them to follow in Chapter 8.

- National CMSP efforts currently lack any legislative foundation, forcing agency staff to set National Objectives, a quintessentially political task, providing no guidance as to priorities among uses, and threatening ongoing funding. Given other pressing national issues and a polarized Congress, this gap is unlikely to be filled in the near term, and will remain a weakness in the program. In the

meantime, agencies can continue to stress existing authorities that support and may even require more integrated approaches.

- The federal agencies, through the Task Force and NOC, recognized many of the potential pitfalls of multiple-use planning and incorporated some good ideas promoted in the policy analysis literature, such as the need for regional leadership, stakeholder input, monitoring and adaptation, and others. They resisted calls from some quarters to consolidate planning under one body. The process has also opened up promising new channels for future communication and cooperation. However, in their ambitious attempt to create a model for MSP in a short time, they left little room for genuine experimentation and innovation at regional or local levels. Although a small window was left open for RPBs to pursue nested, sub-regional planning, it was not promoted or encouraged. The agencies also failed to transcend traditional, formalistic public participation models to foster genuine cross-sectoral dialogue and potentially break new ground.
- By emphasizing the primacy of all existing laws and regulations, the NOC acknowledged that even the best coordination, dialogue, and planning cannot trump legal requirements established by Congress and enforceable by the courts. However, the related assignment, suggested by the Task Force, of analyzing how the bundle of dozens of existing ocean-related laws (see USCOP 2004-b) might be

untangled or integrated remains to be tackled. The Ocean Commission (USCOP 2004) made a number of recommendations in this area that could be revisited. Ideally such a task would be undertaken by a Congressionally-commissioned body whose recommendations about legislative changes might carry more weight than those from an inter-agency committee.

- Although the need to gather all available data and learn from both the scientific community and the public is recognized in MSP planning documents, the importance of searching out and improving knowledge about the social, cultural, and behavioral aspects of ocean communities is not sufficiently elucidated or emphasized. An important conclusion that emerges from the study of forest management is that balanced multiple-use management is a fundamentally social process. While natural science findings are critical to understanding the ecosystems and resources involved, they tell managers nothing about the human factors that drive activities in the ocean and the institutions that govern them. Suggestions for addressing this problem are found in Chapter 8.
- As mentioned previously, the distinction made in federal MSP documents between “stakeholders” (i.e., those presumed to have a direct interest in marine planning outcomes) and “the public” (i.e., everyone else), and the related practice of interacting separately with the communities so-defined, is unlikely to help achieve a lasting, unified vision for the future of ocean space. Documents

and discussions to date seem to be perpetuating a position-driven, adversarial system rather than bringing all parties to the table as citizens with an equal interest in the disposition of their ocean heritage.

- Finally, although industry and foundation funding have been critical to progress on particular state-level marine plans and regional collaborations in some regions, particularly the Northeast, sustainable national funding mechanisms for this monumental undertaking remain elusive. Public-private partnerships and user fees have been suggested and should be evaluated, keeping in mind the conflicts that arose on public lands when communities came to rely heavily on income connected with resource use. Heavy reliance on private foundation funding, with its lack of transparency or accountability, also has the potential to distort decisionmaking.

The notion of pursuing integrated, sustainable, multiple-use management of U.S. ocean areas is in its infancy, with considerable promise and plenty of opportunities for mistakes. Participants from every sector—government, civil society, academia, and the business community—and at scales from local to national will need to work together to avoid the most obvious pitfalls and to move forward together when the process inevitably hits rough patches. In the words of some of those who shared their hopes and concerns with me over the last four years:

It's going to be a huge challenge to get the user groups and the NGOs to embrace a devil that they *don't* know when they at least have some sense of

what they can accomplish with the devil that they *do* know. [Offshore oil and gas]

I think marine spatial planning is definitely needed, without question. ... Some of the key questions now are: How will the process be conducted and will there be funding to do it in the right way? [ENGO]

We need to get to a place where we have spatial planning in the oceans. ... I'm favorable to it because I think it will go a long way to protecting special places in the ocean, which I think is extremely important, but it will also go a long way to help protect ocean users and industries that we need and depend on. ... I still have a lot of questions about how it would be done and I really have some doubts about the ability of our government to do this in the right way to achieve either objective! [IND]

On land, a community can create a vision of what they want to have in the end. That'll be harder in the ocean. [Renewable energy]

8. Summary and Conclusions

8.1 Review of research questions and study approach

The purpose of this study was to explore ocean policy within a broader theoretical and historical context and, more specifically, to critically examine the relatively new concept of marine spatial planning (MSP) as it applies to U.S. ocean policy.

Chapter 1 reviewed recent developments in U.S. ocean policy, including the current focus on MSP as the appropriate mechanism for integrating and coordinating disparate ocean agencies and authorities. Although the adoption of MSP has thus far been modeled primarily on implementation experiences in Europe and Australia, different political, legal, historical and cultural realities in the United States may limit the applicability of those experiences. In searching for other potential models and analytic approaches on which to base U.S. ocean planning, the long record of U.S. public lands management emerges as a possible analog, and the scholarly study of public policy provides a useful theoretical framework. As a result, three research questions propelled this study:

- 1) Are U.S. public lands and the U.S. EEZ sufficiently similar, based on characteristics most relevant to policy analysis, that successes and failures in one arena might be relevant to the other?

- 2) If so, has over a hundred years of active public land management in the U.S. produced any lessons for success that might be applicable to the more recently developing field of ocean management, particularly with respect to multiple-use planning and management? and
- 3) If the settings are similar in meaningful ways, and if lessons can be distilled from public lands management, how might these be transposed, or operationalized to inform the current drive for more integrated ocean management, particularly through the tool of marine spatial planning?

Chapter 2 begins to address the first question, providing historical reviews of federally-controlled spaces in the ocean (i.e., the Exclusive Economic Zone, or EEZ) and on land (i.e., the National Parks, National Forests, Wildlife refuges, etc.). In the latter category, the National Forests are highlighted as the most apt mirror to U.S. marine space. Chapter 3 then examines several established approaches to the study of resource governance and public policy, identifying the variables considered most significant by policy scholars and thus most likely to prove relevant to a land-ocean comparison. That chapter concludes by assessing these features in forest and ocean settings and finding sufficient similarities to answer Research Question #1 in the affirmative.

The next two chapters tackle the second research question, presenting a history of the U.S. National Forest system, with a focus on shifting management approaches. Chapter 4 dissects over one hundred years of laws, regulations, government documents,

academic articles, and public statements related to National Forest management, identifying trends, recurring challenges, and proposed solutions. Chapter 5 then enhances this historical perspective with details gathered through case studies of three specific forests, two in Oregon and one in North Carolina. Site visits and dozens of in-person interviews add specificity and nuance to the overview. Taken together, these chapters provide a positive answer to Research Question #2, identifying a number of factors that either promoted or hindered sustainable management of National Forests.

In Part III, findings about forest management are applied to the marine realm, addressing the third research question. Chapter 6 revisits the comparison of land and ocean settings and uses that framework to identify themes from national forest management most likely to be applicable to the ocean setting, focusing particularly on experiences with multiple-use planning and multi-party management. Chapter 7 then applies these ideas to the federal government's recently proposed implementation plans for MSP, noting potential pitfalls and opportunities for improvement.

8.2 Review of findings

At the start of this study, recommendations for ocean managers were sought in the form of "Do X" and "Avoid Y" to achieve sustainable mixed-use of government-controlled resources. However, a careful review of National Forest history and relevant policy theories yields no such easy answers. Instead, the analysis suggests that there is a multi-dimensional continuum of plausible management options and that policy-makers

must remain aware of the likely consequences of selecting alternatives at different points in this decision space.

Using forest history as a model, it appears that the most significant axes along which ocean policy makers will need to make choices are:

1. **The scale of problem definition and resolution**, i.e., selection of national, regional, state, or local focal points for different processes. National level decision-making is more likely to express broad, majoritarian public values, provide greater consistency, and preclude narrow local concerns from dictating the use of federal public-trust resources. At the other end of the spectrum, local decision-making allows for stronger community engagement, greater diversity in policy solutions, and the emergence of innovative approaches. It is also more likely to foster trust among diverse stakeholders and promote small agreements that can overcome entrenched conflicts. Intermediate scales will provide a mix of large/national and small/local attributes. The ocean community is struggling with these tradeoffs now as different constituencies argue for more or less control of ocean planning by the National Ocean Council, individual agencies, the Regional Planning Bodies, and states.
2. **The “who” and “how” of decision-making**, i.e., determining which choices will be made through political, technocratic, judicial, or participatory approaches. Elected officials may be viewed as coming closest to representing the interests of all citizens and reflecting broad national values, thus imbuing their decisions with an inherent

level of legitimacy. Acts of Congress also tend to be more stable than agency regulations. The absence of Congressional buy-in continues to hamper the development of new approaches to ocean management.

On the other hand, professional agency staff can be viewed as more objective decision-makers, relatively insulated from the fundraising and vote-getting pressures of politics, and trained to rely on science and technical skill to implement statutory requirements. The National Ocean Council committee structure leans heavily on career federal employees. The technocratic approach requires the availability of good scientific understanding, reliable data, and sound analytic methods and is ill-equipped to make value judgments or choose among equally plausible options.

The U.S. courts have also played an important role in resource management by interpreting often-ambiguous statutory language and adjudicating the validity of agency decisions. With lifetime appointments, federal judges may be more independent than elected officials or agency staff, although this also makes them less accountable. But judges can only rule on specific disputes, brought before them by an interested party with sufficient resources to access the legal system. To date, the courts have been involved in resolving specific ocean policy disagreements, for example, setting fishing levels, building ocean structures, or regulating pollutants,

but have not been called on to consider the validity of integrated ocean planning efforts.

Direct citizen participation provides another avenue for decision-making. Many participants and scholars promote the value of face-to-face, collaborative dialogue with its emphasis on building trust and seeking compromise. Such settings have been able to arrive at solutions where traditional approaches encountered gridlock. But participatory processes by their very nature will exclude some interested parties, and thus cannot be given the ultimate say over the management of a public resource. Whether the stakeholder processes called for by the National Ocean Council will result in meaningful collaboration remains to be seen.

3. **The extent of flexibility allowed**, i.e., balancing harmonization and standardization with adaptability and innovation. By standardizing the procedures to be followed among a variety of agencies or regions, policymakers seek to establish greater consistency and predictability for participants. This approach can also guard against subunits adopting policies that undermine or contradict broad programmatic goals. Moves toward functional consolidation and mandated coordination are often justified by similar logic. The recommendations of the Ocean Commission and recent Executive actions on ocean policy strongly reflect this perspective. However, new insights into ecosystem functioning and human institutions highlight the value of diversified, context-specific actions that can increase resilience to unexpected events

and foster nimbleness in adapting to changing conditions. Interagency cooperation may also be more effective where it is self-generated, task-oriented, and flexible.

Different choices among the range of options described above will result in different internal and external outcomes, with different levels of success with respect to: resolving conflicts, satisfying participants, generating revenues, protecting ecosystems, increasing resilience, promoting civic engagement, facilitating monitoring and compliance, defending the interests of vulnerable minorities, or any of dozens of other worthy goals. By being informed and conscious of these tradeoffs, decision-makers can be intentional in their prioritization among conflicting goals and deliberate in their approach to meeting them.

8.3 Suggestions for the ocean community

When it comes to the future of U.S. ocean policy, all members of the ocean community—broadly defined to include relevant elected officials, agency personnel, judges, scientists and scholars, the media, advocacy groups, ocean industries, and coastal communities—should be aware of the role they play and the pervasive impacts of the choices they make. In implementing multiple-use, integrated marine spatial planning successfully, three groups may be able to contribute in significant ways:

government agency representatives, non-governmental advocacy groups, and the research community.¹

The National Ocean Council (NOC) has not yet released its long awaited Action Plan for MSP.² However, based on the NOC's pre-publication draft and the Interagency Task Force's MSP Framework (both analyzed in Chapter 7), some changes in the overall approach may be beneficial. First and foremost, the NOC should re-consider the potential consequences of the very top-down, standardized approach embodied in current plans. As discussed above, although this direction may ensure that all regions prepare adequate plans and that no region ignores potentially desirable steps, it also risks reducing regional and local buy-in, limiting stakeholder engagement, and lowering the likelihood of seeing diverse, innovative approaches emerge. The NOC could also encourage Regional Planning Bodies (RPBs) to allow for nested sub-regional planning and experiment with more collaborative approaches to stakeholder engagement.

As currently envisioned, the lead implementers for MSP at the regional level will be the federal, state, tribal, and local agency officials and Regional Fishery Council members appointed to the RPBs, a weighty responsibility. At the first and only RPB meeting held so far, in the Northeast region, RPB members asserted a fair amount of

¹ Congress could also play an important role by passing legislation that expresses a national consensus about appropriate goals and priorities for ocean use and providing funding that enables achievement of those goals. However, current political and financial circumstances appear to make that extremely unlikely in the near term.

² It remains unclear whether this delay is due to internal Administration political considerations in the face of a hostile House and competing priorities, or whether changes are still being made to the document.

independence from NOC requirements or guidance. This position was encouraged by the staff Director of the NOC, whose initial presentation to the RPB did not even describe the elements of the Action Plan, stating instead that: “This is about ... the things that all of *you* identify and define as important to address ... The region will determine the scope, scale, and content of what comes out as the product from marine planning ... This is fundamentally a regional effort.” This potential divide between regional desires and the directions provided in the Framework and Action Plan documents will need to be acknowledged and addressed.

Other findings from this study suggest that RPBs should allow for and encourage sub-regional dialogue and planning. This will be particularly true in larger regions such as the West Coast. Issues of great local significance could be overlooked at the larger scale, while workable resolutions might be found through collaboration among directly affected parties at smaller scales. RPBs should allow such local ideas to emerge and then develop mechanisms for reconciling any disparities that arise between adjacent sub-regions.

Funding for new government programs is scarce at both federal and state levels. Absent Congressional approval and appropriations, RPBs will need to consider other, possibly novel sources of support for their tasks, including grant funding, public-private partnerships, and in-kind contributions. However, public-land experiences warn that

care must be taken to avoid letting funding considerations drive decision-making—or at least to be conscious that such influence is hard to prevent.

RPB's will also have to oversee data synthesis, analysis, and mapping efforts.

Although physical and biological data and understanding will be critical to understanding the ecosystems and resources involved, a central lesson from the study of forest management is that balanced multiple-use management is a fundamentally social process. Looking at current data holdings in the federal ocean information database (ocean.data.gov), it appears that significant efforts are still needed to incorporate social, cultural, and behavioral data, analytic approaches, and knowledge. Government officials should reach out more actively to the social science community, demonstrating a willingness to listen, to learn the unfamiliar vocabulary used in these fields, and possibly to see themselves in new ways. The costs of supporting investigators and acquiring data in these areas should not be prohibitive, compared to the large investments in ship time, instrumentation, and personnel needed for oceanographic data collection.

The research community itself has important responsibilities to fulfill. Although the existing academic structure provides few incentives for interacting with policymakers, the need for such exchanges is acute, particularly with respect to social and behavioral sciences. Relevant research findings must be translated into actionable policy options, in language that is accessible to managers. Important and highly relevant

areas of knowledge that are well-developed in academic circles but rarely mentioned among ocean managers include institutional analysis and collaborative governance (reviewed in Chapter 3), but there are many others. Conversely, the ocean management community could benefit from increased scholarly attention to policy-relevant questions such as: How can findings from lab-based experiments and from studies of small or isolated communities be translated to more complex, formalized, highly-interconnected policy settings? Similarly, how can findings regarding the management of particular resources (often fisheries) be extended to a multiple-resource, multiple-use context? And how can the benefits of face-to-face collaborative governance be meshed with legal requirements for open processes and government duties concerning public-trust resources? A first-of-its-kind meeting, the “Social Coast Forum: Social Science for Coastal Decisionmaking,” was held in Charleston, SC in 2012 sponsored by the NOAA Coastal Services center precisely for the purpose of bringing together coastal managers and social scientists. More such efforts are needed, including smaller, ongoing working groups. Equally important, prominent policy scholars who have not yet focused on the application of their work to ocean and coastal issues should be recruited and convinced of the value of such inquiries.

Finally, marine advocacy groups representing both environmental and commercial perspectives should seek out novel ways to serve both their constituents’ interests and the broader public good. There may be times when nothing short of no-

holds-barred battles can protect disempowered causes and fundamental values. More often, locked horns, inflammatory rhetoric, and scorched earth legal clashes may achieve today's wins, but make it much harder to reach lasting solutions. Supporters and funders of issue advocacy, largely from the philanthropic and business communities, should also be acutely conscious of tradeoffs between the use of overwhelming force, i.e., heavily funded, intensive campaigns with specific near term objectives, and the practice of patient diplomacy that focuses on building trust, fostering relationships, winning hearts and minds, and achieving long-term goals.

The recurrent theme throughout this study and in the discussion above has been the need to question common wisdom, re-examine accepted practices, and move beyond narrow interests, whether that means talking with different kinds of people, learning from unfamiliar disciplines, experimenting with new approaches, or accepting the validity of alternate worldviews. There is a storehouse of untapped academic knowledge and experience acquired in other policy arenas available to those seeking continual improvement in our stewardship of the ocean and its resources. This study draws on some of that knowledge and experience to help improve the prospects for multiple-use ocean planning in U.S. waters.

Appendix

Much of the data collected for the case studies described in Chapter 5 came from a series of in-person, semi-structured interviews with local Forest Service staff, environmental advocates, forest users, and community members. The scripts for those interviews are shown below.

1) Interview script for Forest Service Staff

Opening: Thank you very much for meeting with me. As I mentioned when I contacted you, I am a graduate student at Duke University. As part of my research, I am interested in learning more about the management of public lands, particularly the U.S. National Forests. Before we get going, I'd like your permission to record our conversation. This helps me to pay closer attention and remember what we said later. When I get back to my office, the recording will be transcribed, the text will be edited to make sure your name and affiliation remain confidential, and the recording will then be erased.

Please speak as candidly as possible and be assured that I will never identify you in connection with anything we say today. Of course, you can decline to answer any question if you're not comfortable. Do you have any concerns or questions for me before we start?

[Questions in italics to be included as time permits.]

(1) General Background

- You have been involved in forest management for a number of years. To start off, can you tell me a bit more about your history at the USFS?
- What are the major activities that take place in this National Forest (NF)?
- What are the two most significant changes you've seen in the forest since you've been involved?
- In your opinion, what is the primary goal of forest managers, for example, to maximize direct economic benefits, to preserve the forest in a natural state, to serve local community needs or some balance among these goals?
- Can you explain the agency structure and decisionmaking path in this forest, maybe with a diagram if that helps?
- *As you know, the laws say NFs are to be managed for a variety of uses, including timber, wildlife protection, recreation, and others. In your opinion, is it better to*

designate single-use zones for each objective or to allow uses to overlap?

(2) Forest Planning

- When was the most recent Plan completed for this NF, and when is the next revision due?
- What is your assessment of the current plan, on a scale from 1-10, where 1 would mean it's terrible and ten would mean it's excellent?
- What do you see as its biggest strengths and weaknesses?
- To what extent does the Forest *Plan* control on the ground decisions about permits or projects?

(3) Public participation

- Who are the major stakeholders (SHs) here?
- In what ways are SHs involved in decisions related to this NF?
- Who do you believe has the greatest influence over decisions about forest management here, whether inside or outside the FS?
- I have read a lot about collaborative efforts in Forest Planning. Is there a formal collaborative group here?
- *[if yes]* Have you been personally involved with that effort? How effective do you think it's been? Why or why not?

(4) Conflict

- Who do you consider to be your greatest allies in achieving your goals for this forest? Your biggest opponents?
- Has that changed over time?
- *Has there been any significant litigation over the management and use of this forest?*
- *[if yes]* Can you tell me what the major issues in dispute were, and how they were resolved?

(5) Perceptions of "success"

- In your opinion, how well-managed is this NF, on a scale from 1-10, where 1 means you totally disagree with its management and 10 means managers are doing an excellent job.
- What are the strengths and weaknesses?
- Over the time you've been involved, would you say that things have been moving in the right direction or wrong direction for this NF?
- Whether or not you agree with every decision that is made, do you consider the process used to reach decisions to be impartial and fair to all interested parties?

(6) The Future

- What do you see as the major threat to the future of this NF?
- *Assuming the current FS approach to management stays the same, do you think this forest will look different in 20 years? If so, in what ways?*
- Looking back 20 years *from now*, how would you judge “success” in managing this forest?

(7) Sources of information *[if time runs out, these questions can be asked later by email or over the phone]*

- What kinds of information are available about this NF? For example, are there annual records of acres logged, water quality, animal populations, etc.? Is that information publicly accessible?
- What information are you required to keep to satisfy GPRA (the Government Performance and Results Act)?
- Are there specific articles or reports you think I should read to better understand the history and current status of this NF?
- Who else do you think I should talk with to hear a variety of perspectives about this NF?

Close: Is there anything else you would like to comment on, or do you have any questions for me? Your perspectives will be extremely valuable to my research project. Here is my contact info *[provide a business card]*; please call or write to me at any time if you have additional thoughts or questions. Thank you again for your time.

2) Interview script for those outside Forest Service

Opening: Thank you very much for meeting with me. As I mentioned when I contacted you, I am a graduate student at Duke University. As part of my research, I am interested in learning more about the management of public lands, particularly the U.S. National Forests. Before we get going, I’d like your permission to record our conversation. This helps me to pay closer attention and remember what we said later. When I get back to my office, the recording will be transcribed, the text will be edited to make sure your name and affiliation remain confidential, and the recording will then be erased.

Please speak as candidly as possible and be assured that I will never identify you in connection with anything we say today. Of course, you can decline to answer any question if you’re not comfortable. Do you have any concerns or questions for me before we start?

[Questions in italics to be included as time permits.]

(1) General Background

- You have been interested in NF management for a number of years. To start off, can you tell me a bit more about your history with these issues?
- What are the major activities that take place in this National Forest (NF)?
- What are the two most significant changes you've seen in the forest since you've been involved?
- In your opinion, what is the primary goal of forest managers here, for example, are they trying to maximize direct economic benefits, preserve the forest in a natural state, serve local community needs, or balance several of these goals? Do you agree with that priority?
- From your perspective, what is the path for making decisions about the use of this forest? You can draw a diagram if it helps.
- *As you know, the laws call for NFs to be managed for a variety of uses, including timber, wildlife protection, recreation, and others. In your opinion, would it be better to designate single-use zones for each objective or to allow uses to overlap?*

(2) Forest Planning

- When was the most recent Plan completed for this NF, and when is the next revision due?
- What is your assessment of the current plan, on a scale from 1-10, where 1 would mean it's terrible and ten would mean it's excellent?
- What do you see as its biggest strengths and weaknesses?
- To what extent do you think the Forest *Plan* controls on the ground decisions about permits or projects?

(3) Public participation

- Who are the major stakeholders (SHs) here?
- In what ways are SHs involved in decisions related to this NF?
- Do your views matter to the FS staff?
- Who do you believe has the greatest influence over decisions about forest management here, whether from inside or outside the FS?
- I have read a lot about collaborative efforts in Forest Planning. Is there a formal collaborative group here?
- *[if yes]* Have you been personally involved with that effort? How effective do you think it's been? Why or why not?

(4) Conflict

- Who do you consider to be your greatest allies in achieving your goals for this forest? Your biggest opponents?
- Has that changed over time?
- *Have you (or your organization) been involved in litigation over any decisions at*

this NF?

- *[if yes] Can you tell me what the major issues in dispute were, and how they were resolved?*

(5) Perceptions of “success”

- In your opinion, how well-managed is this NF, on a scale from 1-10, where 1 means you totally disagree with its management and 10 means managers are doing an excellent job.
- What are the strengths and weaknesses?
- Over the time you’ve been involved, would you say that things have been moving in the right direction or wrong direction for this NF?
- Whether or not you agree with every decision that is made, do you consider the *process* used to reach decisions to be impartial and fair to all interested parties?

(6) The Future

- What do you see as the major threat to the future of this NF?
- *Assuming the current FS approach to management stays the same, do you think this forest will look different in 20 years? If so, in what ways?*
- Looking back 20 years *from now*, how would you judge “success” in managing this forest?

(7) Sources of information *[if time runs out, these questions can be asked later by email or over the phone]*

- What kinds of information are available about this NF? For example, are there annual records of acres logged, water quality, animal populations, etc.? Is that information publicly accessible?
- What information are you required to keep to satisfy GPRA (the Government Performance and Results Act)?
- Are there specific articles or reports you think I should read to better understand the history and current status of this NF?
- Who else do you think I should talk with to hear a variety of perspectives about this NF?

Close: Is there anything else you would like to comment on, or do you have any questions for me? Your perspectives will be extremely valuable to my research project. Here is my contact info *[provide a business card]*; please call or write to me at any time if you have additional thoughts or questions. Thank you again for your time.

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Biography

Morgan Gopnik works as an environmental policy consultant for clients including government agencies, research institutes, foundations, industry associations, and nonprofit organizations. Recent projects have focused primarily on marine spatial planning, although past work covered a broad range of environmental topics. Dr. Gopnik served previously as Director of the Ocean Studies Board at the National Academy of Sciences, Senior Advisor to the U.S. Commission on Ocean Policy, and Senior Vice President at the Ocean Conservancy. She has published a number of policy reports and peer-reviewed articles and given dozens of presentations at workshops and conferences.

Dr. Gopnik was born in Philadelphia in 1958, but spent her formative years in Montreal, Canada. She received a B.Sc. in Physical Geography from McGill University in 1981, a M.S. in Environmental Engineering Science from the California Institute of Technology (Caltech) in 1982, and a Ph.D. in Marine Science and Conservation from Duke University in 2013. Scholarships and awards include: the McConnell Award and designation as a University Scholar (McGill); Haagen-Smit/Tyler Fellowship and Natural Sciences and Engineering Research Council of Canada Graduate Scholarship (Caltech); Rachel Carson Fellowship and Robert Safrit Fellowship (Duke); Award for Outstanding Service and Team Award for the Ocean Studies Board (National Academy of Sciences); and a Congressional citation for service to the U.S. Commission on Ocean Policy.